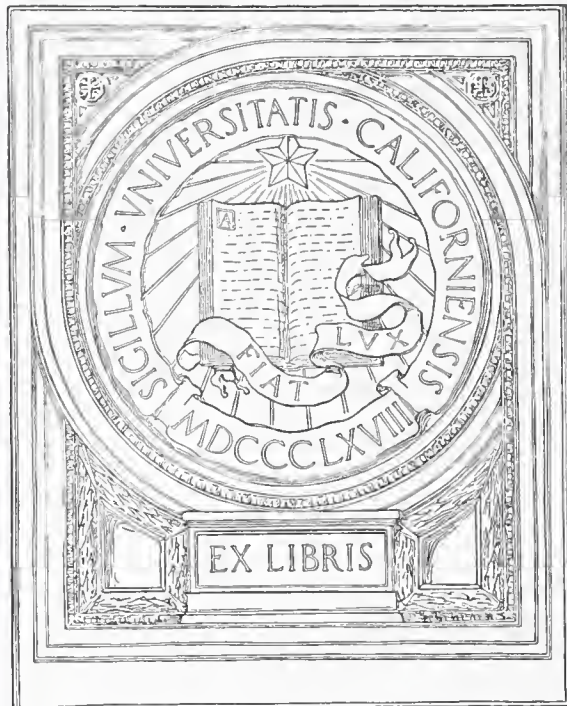




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# California and Western Medicine

OFFICIAL PUBLICATION OF THE  
CALIFORNIA MEDICAL ASSOCIATION  
ACCREDITED REPRESENTATIVE OF THE  
NEVADA STATE MEDICAL ASSOCIATION  
ACCREDITED REPRESENTATIVE OF THE  
UTAH STATE MEDICAL ASSOCIATION



PRINTED AND EDITED  
FOR THE  
California Medical Association

Under the direction of the House of Delegates and Council

GEORGE H. KRESS, M. D.

EMMA W. POPE, M. D.

*Editors*

VOLUME XXIX

JULY TO DECEMBER, 1928

*California Medical Association, Balboa Building, San Francisco*



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1929

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# CALIFORNIA AND WESTERN MEDICINE

*Owned and Published Monthly by the California Medical Association*

1016 BALBOA BUILDING, 593 MARKET STREET, SAN FRANCISCO

ACCREDITED REPRESENTATIVE OF THE CALIFORNIA, NEVADA AND UTAH MEDICAL ASSOCIATIONS

VOLUME XXIX  
NUMBER 1

JULY • 1928

50 CENTS A COPY  
\$5.00 A YEAR

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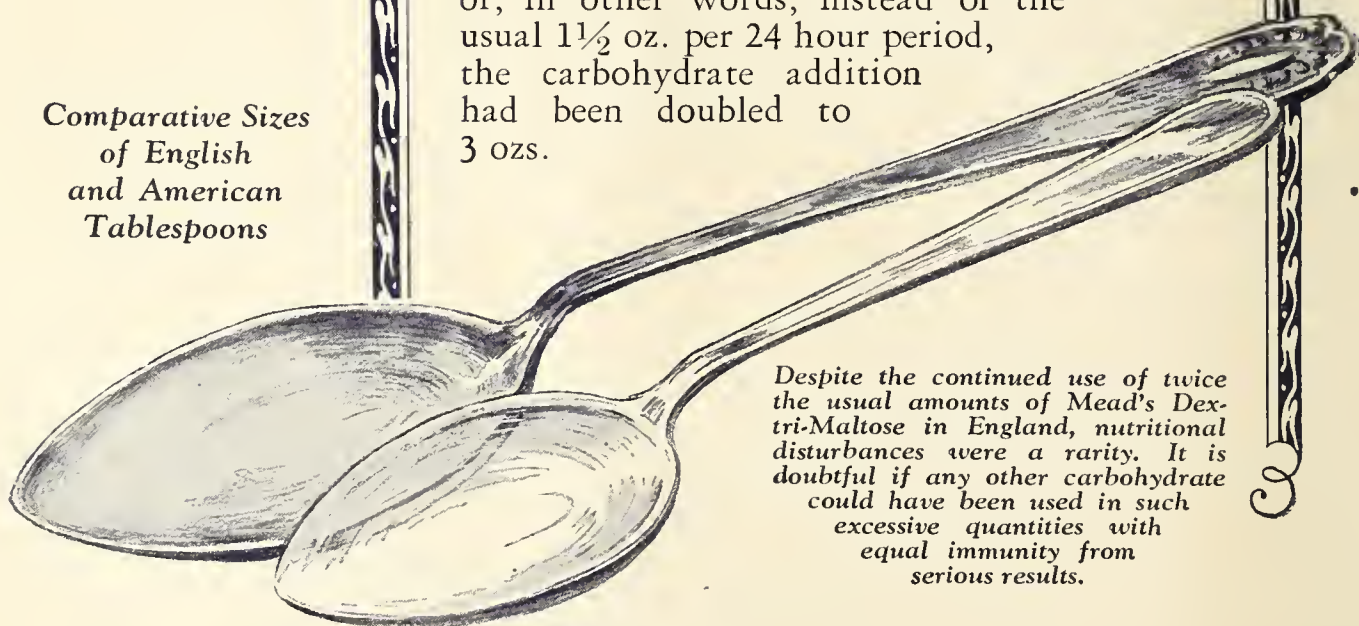
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# CALIFORNIA AND WESTERN MEDICINE

VOLUME XXIX

JULY, 1928

No. 1

## THE COST OF MEDICAL CARE\*

By RAY LYMAN WILBUR, M. D.  
*Stanford University*

THE saddle bag age of medicine has passed, but "saddle bag" thinking on the part of the profession and the public is still with us. Medicine has become an applied science in which the art of medicine must rest upon a fact basis or become a comparative failure.

We live in an economic age, but medicine as an organized profession does not fully realize it. With billions of dollars involved in the care of the sick, the employment of economic advisers by the medical profession is almost unknown. A modern business has its statisticians and its economists surveying the past and present and preparing for the future. Medicine stumbles ahead as a great social factor led by a few far-seeing individuals, prodded by a lot of uplifters, legislators and enthusiasts and with a well-developed defense complex against those changes which come to all growing things. The practice of medicine can only be fully understood by those who have lived it and yet unless the profession bestirs itself great changes in medicine will take place through the instigation and pressure of outsiders. The golden thread of human understanding and of close personal relations between doctor and patient may be left out of the new social fabric which is being woven right under our eyes.

### FACTS FACING THE PROFESSION

We must face the facts, we must study them to see what they mean, we must guide ourselves by what they tell us, not by traditions and thinking that belong on the retired list. The age of gasoline and concrete, of x-rays, modern hospitals, industrial accident compensations, industrial and institutional organization for medical care, group practice and modern public health compel new ideas, and, as Christopher Morley said in his "Thoughts of a Middle-Aged Mandarin,"

"Breaking in a new idea  
Is like breaking in a new pipe;  
Uncomfortable work.  
I like the old familiar thoughts,  
No bite or parch."

Even if they do bite and parch, leadership requires that ideas be studied and understood. The air is full of legislative and other panaceas for

the one outstanding social and economic fact, *i. e.*, we have not devised a financial system by which all members of society, regardless of economic status, may receive a full or even a reasonable share of the benefits possible through the practical application of modern scientific medicine. Our distribution is faulty because our methods are behind the times and the public thinking is addled. What other business does free work as a part of its regular program? What other business has a sliding scale of charges varying from \$25 to \$10,000 for the same service? Who knows how much it costs a physician to make a call? We know what cost accounting has done for modern business. Who knows anything about cost accounting in medical practice? We have not even the evidence upon which to develop a modern plan and yet a considerable proportion of the profession are fundamentalists with locked minds when any new procedure is proposed. We cannot escape change. The question is, are we going to guide it? Many proposals made are not "socialistic" or "bolshevistic." They cannot be quieted by slogans or personal attacks on the experimenters. How can we keep that independence which is essential in the life of the physician and also that close personal relationship between doctor and patient which is vital to successful care of a large proportion of human ailments? Some plan must be devised so that official snoopers will not be projected in between doctor and patient. The physician must show that acute and yet conservative responsiveness that is the basis of the rapid progress of medicine as a science in the development of the practice of medicine in an economic world with new concepts of government, social organization, publicity, education and science.

### A PROPOSED FIVE-YEAR STUDY PROGRAM

Recently some of us have started out on a five-year study program on the cost of medical care. There is already a study going forward on the cost of medical education and of nursing education. The American Medical Association is doing great work in its medical school and hospital studies and other organizations are making researches and experiments in the field of social medicine. In the work of the Committee on the Cost of Medical Care we have no solutions. Frankly we do not know what should be done. We want to build up the facts with the guidance of thoughtful physicians and social workers and economists and try to see whether new trails can be roughly blazed, along which progress can be begun. If they prove to be well placed they can

\* Read before the California Medical Association in General Meeting at the Fifty-seventh Annual Session, April 30-May 3, 1928.

\* The general outline of studies by the Committee on the "Cost of Medical Care" is printed in the Medical Economics column of the Miscellany Department of this issue of the journal.



be broadened and paved for mass advances. We need experimentation and much of it. We should take advantage of the fortunate situation in the United States where we can try things out in individual communities or cities or states and copy them if they prove to be good.

#### COÖPERATION OF PROFESSION NEEDED

Above all, our hope is that we can enlist the thinking of the medical profession. Perhaps the results of the studies will be irritating, they may set up some local inflammation at times, but it is better to build up immunity by small doses than to be overwhelmed. As I view it, medicine as a profession has proven itself too valuable for society to allow it to be inadequate and uneven in its service. Public health has taught us that one man's health is everybody's business.

The 140,000 physicians in the United States, together with the nurses, dentists and sanitarians, have more immediately at stake in proper organization than any other portion of the population. There are great inadequacies in the situation at the present time. It has been stated that in this most prosperous period most of the tonsillectomies done in great cities are done without charge to the patient. Some 15 per cent of the 2,400,000 births each year are not attended by physicians. Uncollectable bills and free work form a very large item in the accounts of the ordinary physician. There have been very large contributions and endowments for medical service but very few of these take the form of payment for services rendered by physicians. A considerable proportion, too, of the hospitals are not operated for profit. One of the fundamental questions is whether they should be. It is quite clear, too, that the large proportion of our population made up of people of moderate means, who desire to meet all of their obligations, find it difficult, if not impossible, to carry their families through periods of illness. Since our legislative group comes largely from this portion of the population a sympathetic ear is given to solutions often proposed by those who see only one side of the picture.

There is a gradual encroachment in various directions in the field of medical practice which takes the form of group practice, public clinics, pay clinics, organization of hospital and medical services by great corporations, such as the railroads and industries, student health services in the universities, benevolent societies with hospital privileges, and public health is constantly extending its range. There is no common program, no statesmanship, no strategy, simply the field is gradually being occupied with much overlapping and much dissatisfaction.

#### MAJOR AIMS OF THE COMMITTEE

The aim of the Committee on the Cost of Medical Care is to try to develop a program which will be based on the three following groups of studies:

1. Preliminary survey of data showing incidence of diseases and disabilities requiring medical service and of the existing facilities for dealing with them.

2. Studies on the cost to the family of medical services and the return accruing to the physician and other agents furnishing such service.

3. Analysis of specially organized facilities for medical care now serving particular groups of the population.

There is considerable material available on all these points, but it has not been properly digested and coördinated. The following subjects have been given a priority:

1. The diseases and conditions most responsible for disability and inefficiency.

4. Existing facilities for the treatment and prevention of disease and defectiveness,—statistical study.

5. Surveys of the medical services of a large city, of a small city, of a rural community.

6. The cost of sickness, during a twelve months period, among various representative population groups, including the incidence of sickness.

9. Capital investment and income in private practice.

10. Capital investment in hospitals and clinics.

11. Organized medical service in industry and in universities.

12. Pay clinics and group clinics.

Stanford University.

### A STUDY IN THE PATHOLOGICAL PHYSIOLOGY OF INTRACRANIAL NEOPLASMS— THE PRINCIPLE OF TRANSMITTED PRESSURE IN THE PRODUCTION OF SYMPTOMS\*

By CYRIL B. COURVILLE, M. D.

*Loma Linda*

"To the physiologist and the pathologist they (intracranial tumors) are of peculiar interest by reason of the light they often shed on the localization of function and the unusual physical disturbances which arise in consequence of their origin within a rigid bony chamber."—Cushing.

#### INTRODUCTORY

INTEREST in the subject of intracranial tumors has increased of late, stimulated by recent advances in pathology and improvement in the surgical technique for their removal. The day when the diagnosis of brain tumor carried with it a hopeless prognosis, however, is not entirely past. The fatalistic attitude on the part of the general practitioner has been due in no small measure to the tardy diagnosis of the condition, when it already presents alarming symptoms and when surgery is of little or no avail. The physician, who is the patient's first line of defense, does not always recognize the early signs of intracranial growth, and not infrequently for good reason. The sometimes conflicting evidence of symptoms and signs presented by an

\* From the anatomical laboratories, College of Medical Evangelists, Loma Linda and Los Angeles.

\* This paper was awarded the State Association Clinical Prize of \$150 at the Fifty-Seventh Annual Session of the California Medical Association, April 30 to May 3, 1928.

advanced case does not always spell tumor, especially when the typical picture of increased intracranial pressure is absent.

The symptoms of brain tumor have been divided into two groups by most writers on the subject:<sup>1 2 3 4</sup>

(a) *General symptoms* due to a rise of pressure within the skull; and

(b) *Localizing symptoms*, or the regional disturbances due to the tumor; and to these, others,<sup>5 6</sup> have added to good purpose a third group;

(c) *False localizing symptoms* (Fernsymptome) whose appearance is sometimes disconcerting when an attempt is made to locate the lesion.

With the thought in mind of offering a possible solution to the problem of symptom production, the following proposition is suggested:

#### STATEMENT OF THE PRINCIPLE

1. The brain is inclosed in a rigid case, roughly hemispherical in shape. The tentorium separates the cranial cavity into compartments, the upper one containing the cerebrum and a lower posterior one, the cerebellum and the brain stem. These two spaces are incompletely divided into lateral halves by the falx cerebri and the falx cerebelli.

2. As Leonard Hill<sup>7</sup> has emphasized, the brain is practically as incompressible as water.

3. The compressing element, the tumor, grows either by destruction and replacement, or by compression of the brain tissue, the method depending upon the pathological nature of the growth. The latter is made possible only by the driving out of the blood, tissue fluid, and cerebrospinal fluid from their anatomical containers.

4. The pressure of expansion is first made manifest immediately about the tumor, causing the earliest localizing symptoms unless it be located in a mute area. Other factors being equal, the pressure progressively spreads concentrically until resistance is finally met by the enveloping dura and its reduplications.

5. Symptoms are produced by (a) destruction of brain tissue by the invading tumor, and (b) compression of the surrounding areas by advancing pressure. In the latter case the symptoms are either the result of anoxemia in consequence of decreased blood supply,<sup>8</sup> or pressure of a functionally important part of the brain against a bony prominence or margin of a dural reduplication. This last factor is of special importance in the production of false localizing signs if such compression occurs on the opposite side of the brain.

6. Symptoms are most prominent when the lines of force are at right angles to the bony resistance, or where the lines of force are converged to concentrate on an area.

#### DISCUSSION OF THE PRINCIPLE

A tumor of the brain or of its envelopes grows only by displacement or destruction of previously existing structures, for the intracranial cavity is entirely occupied by the contained elements. The

effect of this growth as manifested by clinical symptoms, depends upon its location and the rapidity of its enlargement. Thus, a tumor arising in the meninges is essentially a slow-growing affair producing its symptoms by compressing the neighboring areas. Of the gliomas,<sup>9</sup> some are slow growing, also producing symptoms by compression of adjacent tissues. Others (as the spongioblastoma multiforme), spread rapidly and by destruction of nervous structures, result in a loss of function. The attendant intracranial pressure in some of these invading tumors is not so great as at first might be expected, owing to the minor alteration in the combined mass of tumor and brain. It is remarkable how slight a degree of local compression occurs in some of these cases.

The first evidence of compression will be found in the immediate vicinity of the tumor and will be accompanied by the driving out of the blood and tissue fluid. Walshe<sup>8</sup> states that the decrease in the oxygen supply to the cell results in increased irritability as well as a decrease in its normal function. He gives as proof, the weakness of the limb which in Jacksonian epilepsy is manifested.

As the tumor grows other symptoms will result as corresponding functional areas are compressed. The degree of compression is inversely proportional to the distance of such an area from the tumor, influencing the prominence of the symptom and the time of its appearance in the course of the disease. As the pressure progresses, dislocation of the brain mass results which alters its internal structure and forces functionally important elements against the resisting bony walls or margins of the dural reduplications. Depending upon the situation of the growth and the shape of the confining cavity, this compression may be the greatest on the same or on the opposite sides of the skull. In the latter case, disturbances pointing to the contralateral part of the brain result and become false localizing symptoms.

#### A. GENERAL PRESSURE SYMPTOMS

Increased intracranial tension may be classified as:

(a) *General*, due to an interference with the cerebrospinal fluid flow, or a gross disturbance in the mass balance within the skull; and

(b) *Local*, due to the regional pressure disturbance incident to a growing tumor.<sup>10</sup>

The following symptoms are due to the general increase in pressure:

*Headache*—The production of this common symptom of brain tumor is of interest from the viewpoint of transmitted pressure. It is a well-known fact that the bony vault as well as the brain tissue is insensitive. The dura mater, which can be cut without pain, is definitely sensitive to traction, probably due to the presence of sensory fibers from the trigeminal and vagus nerves.<sup>11</sup>

In the increasing pressure consequent to a growing tumor, there is a stretching of the dura resulting in headache. The location of the headache is observed to vary considerably, so much so that little attention is given to it as a localizing



factor. The principle of transmission of pressure explains the frequent occurrence of fronto-occipital headache in patients with brain tumors. The anterior and posterior poles of the cerebral hemispheres rest in a cone-shaped fossa. Lines of pressure from the expanding tumor are converged to center in the frontal and occipital regions so that the greatest tension is at these points, which accounts for the locations of the headache. Headaches occurring at the vertex of the head are probably due to a displacement of the falx cerebri with a pull on its attachment in the midline of the vault. Headache on the opposite side from which the tumor is situated has been described, and is probably due to the extension of pressure to the opposite side of the skull with contralateral stretching of the dura.

It is a matter of interest to note that the headache of pituitary tumors<sup>12</sup> is bitemporal in situation. The transmission of pressure from the growing tumor is greater laterally than in any other direction owing to the confining bony walls of the sella in front, below, and behind, and with the strong diaphragm above tightly anchored to the bony prominences. The dural covering of the cavernous sinus is put on the stretch and the pain is referred to the temporal region on either side.

*Papilledema (Choked Disc)*—The etiology of this particular sign of increased pressure in the skull has been under discussion for many years. The present conception is that it is due to mechanical rather than toxic factors.<sup>13 14</sup> Schwalbe's discovery<sup>15</sup> that the investing sheath of the optic nerve was an extension of the meninges and that its spaces were continuous with the subdural and subarachnoid spaces is of special significance. Increased pressure in the meningeal spaces will result in acute distention of the optic sheath with consequent changes in the disc. Paton<sup>16</sup> in his study of optic neuritis in cases with intracranial tumor states that the degree of change in the disc is inversely proportional to the distance of the part affected from the chiasm. While this is true and in agreement with our theory, this statement is modified by many factors. For instance, many slow-growing tumors such as the meningiomas (dural endotheliomas) may be attended by no elevation of the disc whatsoever because of the relatively small change in intracranial tension. Rapidly growing tumors whose enlargement occurs as the result of destruction and replacement of normal by malignant tissue rather than by compression alone, may show but little change in the optic discs until the process is well advanced.

Hydrocephalus in which the earliest mechanical changes are found in the cerebrospinal fluid channels is also an exception to this statement. The pressure is transmitted through the brain to the fluid in the subarachnoid space and in the spaces about the optic nerve, resulting in comparatively early changes in the fundus, although the obstructing lesion may be in the posterior fossa. A tumor in the region of the chiasm or the optic nerves is another exception in which

primary optic atrophy is observed rather than papilledema. In meningiomas of the olfactory groove there is atrophy of the nerve on the ipsilateral side, due to direct pressure on the nerve, and papilledema on the contralateral side due to the incident increased intracranial tension.

*Vomiting*—While the projectile type of vomiting has long been recognized as an evidence of intracranial tension, it is not uncommon, however, to find vomiting definitely preceded by nausea in some cases. It is of interest in this connection to investigate the mechanism of symptom production in each form.

Projectile vomiting is usually associated with a severe headache, slowing of the pulse, and an elevation of blood pressure, evidently irritative phenomena arising from interference with the function of the vagus and vasomotor centers of the medulla. It is most frequently present in tumors of the posterior fossa, and in these instances is due to the transmission of the pressure of the growth to the medulla, primarily or secondarily through the fluid in the fourth ventricle. The medulla is pressed against the basilar portion of the occipital bone resulting in the partial interference with its blood supply.

The nonprojectile type of vomiting which is preceded by a feeling of nausea is probably dependent upon a different mechanism. It is common knowledge that some individuals are nauseated by almost any degree of ill feeling. The extent of appendiceal irritation which results in persistent vomiting in one patient may merely produce a loss of appetite in another. The vomiting with nausea in some patients with brain tumor (chiefly supratentorial) is probably an evidence of a general indisposition consequent to the headache and malaise, or due to vertigo and not necessarily a sign of increased tension within the skull.

*Slow Pulse and Elevated Blood Pressure*—These symptoms are due to the same mechanism as that of projectile vomiting and are likewise found most consistently in posterior fossa lesions. They are due to irritation of the vagus and vasomotor centers probably through the reduction of blood supply to the area.

#### B. LOCALIZING SYMPTOMS

In a critical study of the records of brain tumor cases, one is impressed with the variation of symptoms from the more or less classical syndromes of the lobes and areas of the brain. Such observations modify our views, not of cerebral localization, but of the value of the so-called localizing signs.

In the following paragraphs a study of these symptoms and signs will be made in the light of the hypothesis of transmitted pressure.

*Mental Symptoms*—The frontal lobes of the brain are probably the most vitally concerned in the higher mental processes, as suggested by general paresis in which the pathology is largely found in this area. In tumors of this lobe there are many abnormal psychic phenomena developed although they are not so prominent in all cases as to lead to a true insanity. Such phenomena are



also found to a lesser extent in tumors of other lobes of the brain. In these instances the symptoms may be the result of involvement of the association pathways of the brain, the result of transmission of pressure forcing the frontal cortex against the inner table of the frontal bone, or to a toxic psychosis incident to extensive degeneration occurring in some of the larger types of tumors. Whether any or all of these factors are active in a given case it should be borne in mind that mental symptoms *per se* are not necessarily indicative of frontal lobe tumors.

#### Cranial Nerve Palsies

—Symptoms referable to the cranial nerves are of common observation in brain tumors. In tumors of the base of the brain such symptoms have a definite localizing value in diagnosis, while those occurring late in the course of a true cerebral or cerebellar tumor are apt to be confusing.

Cushing<sup>17</sup> in his remarkable study of a series of brains of tumor cases has called attention to the relation of abducens palsy with the grooving of this nerve by the crossing of the internal auditory artery. The pons in these cases was grooved by the basilar artery and its branches, being most pronounced in those cases in which the growth was located in the posterior fossa. It would seem as though the best explanation for the phenomena is that of transmitted pressure by a nearby lesion, the resisting arteries, being pressed against the occipital bone, bury themselves in the substance of the pons, being the least resistant of the two structures. In this same contribution, the author mentions the possibility of arterial grooving as being the cause of other nerve palsies, referring to the impression of the carotid or the anterior cerebral arteries on the optic pathway as the cause of optic atrophy in cases with pituitary tumor. Whether all cranial nerve involvement as distant pressure phenomena is the result of grooving by the arteries at the base of the brain or by compression against bony margins may be open to question, it nevertheless aids in visualizing the results of transmitted pressure.

The sixth nerve, while prominently involved in tumors of the posterior fossa, may also be affected in cerebral tumors, frequently on the opposite side to that of the lesion so that it becomes a false

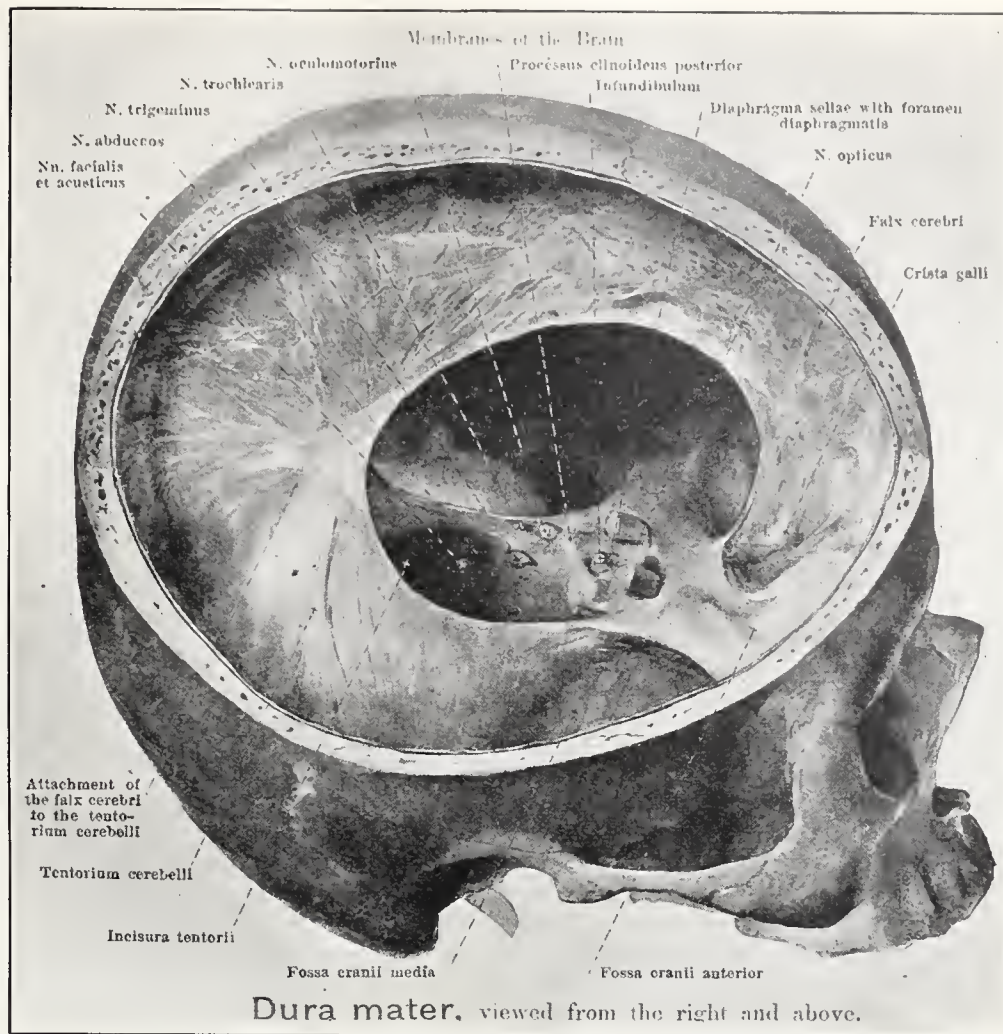


Fig. 1—Skull with section removed to show the reduplications of the dura mater (Spalteholz).

localizing sign. In general, cerebral neoplasms are more apt to be accompanied by palsies, often contralateral, in those nerves emerging from the anterior and middle fossae of the skull, while those of the cerebellum usually affect more frequently the last six nerves.

**Motor Symptoms**—In reviewing the various texts on the subject, the investigator is led in many instances to believe that a case presenting symptoms or signs referable to the motor pathways must have a lesion in direct anatomical relation with the motor cortex or the corticospinal tracts. Little or no distinction is drawn between a *paralysis* indicating a loss of function due to a destruction of some part and a *paresis* which suggests an impairment of function. Thus one may see a patient who presents motor weakness indicating a lesion in the close vicinity of the motor cortex or path, only to find, when the lesion has been exposed, that it is situated in a comparatively distant portion of the brain, in the anterior frontal, parietal, temporal, or even the occipital lobes. Inasmuch as the lesion is evidently not in relation with the motor path, it seems reasonable to believe that these are the result of pressure being transmitted through the intervening tissues resulting in a temporary decrease in function of the part probably by the driving out of the blood content, depriving the area of oxygen. This may



involve the cortex or the subjacent pathways in the centrum semiovale. In deep seated tumors of the temporal lobe, however, it seems more likely that they are the result of compression of the paths in the posterior limb of the internal capsule between the more solid bodies of the lenticular nucleus on the one side and the caudate nucleus and the thalamus on the other.

A cross section of the brain of a case of temporal lobe tumor will show the distortion of the basal ganglia and the displacement of the entire region upward with obliteration of the lateral ventricle on the side of the lesion (See Figure 3). The intervening internal capsule is thinner on section than its fellow, indicating a compression of its constituent fibers.

The occasional occurrence of an ipsilateral Babinski in temporal lobe tumors is to be explained by the transmission of pressure which forces the opposite cerebral peduncle with the motor tracts against the sharp edge of the tentorium. A unilateral Babinski is frequently observed in cerebellar tumors and is due to contralateral pressure of the pyramids against the basilar portion of the occipital bone or by being compressed by crossing arteries.<sup>17</sup> From these observations it must be evident that the value of any alteration of motor function as a localizing sign must be considered with respect to the time of its appearance in the course of the disease. The minor motor symptoms of a temporal lobe tumor which occur late in the history of the case are not to be confused with the early onset of definite paresis incident to a tumor of the posterior frontal lobe, which is frequently associated with Jacksonian epilepsy.

**Sensory Symptoms**—While sensory changes do not enter into the clinical picture of a cerebral tumor with the definiteness of motor disturbances, yet they may be confusing in the same way. The hemihypesthesia in cases with growths involving the temporal lobe has been mentioned above and can be attributed to pressure involving the posterior limb of the internal capsule. Minor degrees of hypesthesia are observed in posterior frontal tumors or posterior parietal tumors, the sensory area being secondarily involved by compression.

**Symptoms of the Special Senses**—Lesions affecting the optic pathway primarily or secondarily produce two types of symptoms: (1) defects of vision due to a loss of function of the fibers of the pathway, and (2) hallucinations due to a perversion of function. Defects in the visual fields as indicated by the perimeter are due to an interference of the sensory stimuli along the pathway which may be temporary or permanent, depending whether the lesion has actually invaded the pathway or merely compressed it. In tumors of the temporal lobe, pressure on the optic radiation produces defects in the fields from a quadrantal defect to a complete homonymous hemianopsia.<sup>18 19</sup> The pressure is at first transmitted to the radiation with a resultant physiological block as suggested by Cushing.<sup>5</sup> If pressure is relieved by craniectomy at this state, return of normal function will promptly result. If destruc-

tion of the pathway has taken place by invasion of the tumor, the damage will, of course, be permanent. This disturbance is produced by the compression of the internal surface of the hemisphere against the relatively inelastic and immovable falx cerebri.

Cushing<sup>18</sup> and Horrax<sup>20</sup> have referred to visual hallucinations in tumors of the temporal and occipital lobes, considering them as possible irritative or pressure symptoms associated with the uncinate syndrome.

The hallucinations of taste and smell associated with the peculiar dreamy state of mind as characterizing the uncinate gyrus syndrome are probably irritative phenomena arising from pressure of the growth in the temporal lobe forcing the gyrus against the tentorium and the base of the middle fossa of the skull. Necropsy rarely reveals the area actually involved in the tumor but rather a com-

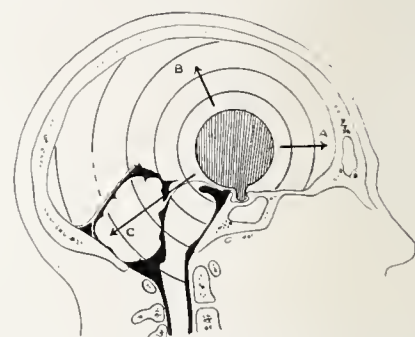


Fig. 2—Craniopharyngeal pouch cyst: A, frontal headache; B, motor symptoms (convulsions); C, cerebellar symptoms.

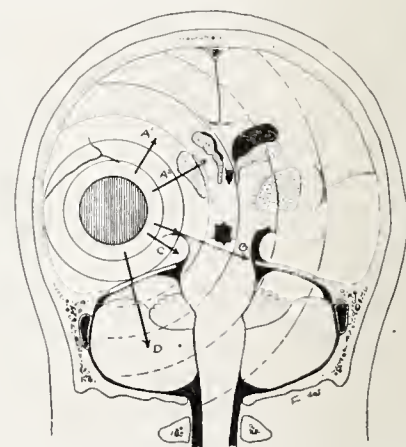


Fig. 3—Temporal lobe tumor: A1-A2, sensory-motor symptoms. Continued pressure explains the contralateral tremor (lenticular symptom) and the obliteration of the ventricle on the same side. B, homolateral Babinski; C, uncinate gyrus syndrome; D, cerebellar symptoms.

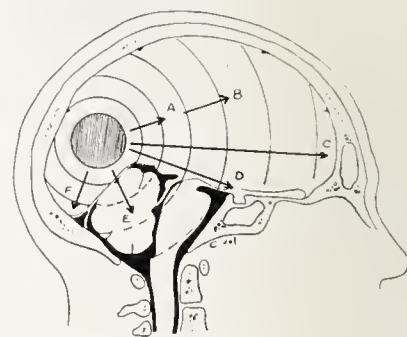


Fig. 4—Occipital lobe tumor: A, astereognosis; B, motor symptoms; C, frontal headache; D, loss of olfactory sense; E, cerebellar symptoms; F, occipital headaches.

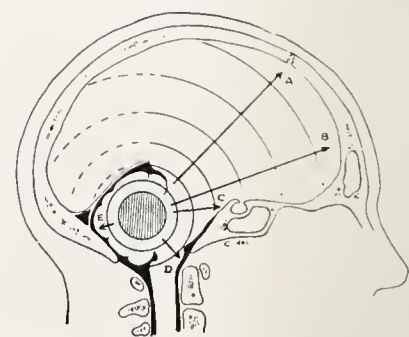


Fig. 5—Cerebellar tumor: A, bursting of the coronal suture; B, frontal headache with convolitional atrophy of the inner table of the frontal bone; C, tipping forward of the dorsum sellae; D, cranial nerve palsies and positive Babinski; E, suboccipital headache with thinning of the occipital bone.

**Explanation of the Diagrammatic Figures**—The tumor is represented by the shaded mass within the cranial cavity with concentric rings denoting the spread of pressure. Broken lines show interference of transmitted pressure as by dural reduplications. Arrows indicate direction of force responsible for symptom production.



pression of it against the structures mentioned.

*Cerebellar Symptoms*—The confusion of supratentorial and infratentorial tumors is a reasonably easy mistake to make in diagnosis, due to the presence of symptoms in tumors of the cerebrum suggesting those of the cerebellum. The occurrence of cerebellar symptoms in tumors of the frontal lobe has been described as one of the traditions of neurosurgery.<sup>5</sup> Neoplasms of the temporal and occipital lobes also produce symptoms simulating those of the posterior fossa. Bailey<sup>21</sup> has called attention to the frequent occurrence of such symptoms in suprasellar cysts (Figure 2). These symptoms have been explained as the result of irritation of the connecting pathways between the great and small brains. This factor, however, cannot explain the cerebellar phenomena produced by tumors in other parts of the cerebrum. It would seem logical that tumors of the frontal lobes or in the region of the third ventricle could, by transmitted pressure, force the cerebellar hemisphere against the occipital bone and account for the misleading symptoms. When the anatomic arrangement of the dural reduplications is considered, it is not difficult to see how easily this might be accomplished (Figure 1). The incisura tentorii not only leaves a direct communication between the upper and lower spaces, but in the midline the tentorium is directed upward toward the upper portions of the frontal bone. Again the cerebellar hemispheres lie beneath the occipital and the posterior portions of the temporal lobes and separated from them by the tentorium. Downward pressure from tumors in these regions, although diminished by the tightly stretched membrane, has a very definite influence on the underlying cerebellum. Most cerebellar tumors occur in the first two decades of life before the sutures of the skull have completely ossified so that pressure changes are rather characteristic as demonstrated by the skiagraph. As has been previously suggested there is a peculiar relation between the cerebellum and the frontal lobes, which is emphasized by the bursting open of the coronal suture and the increase in convolitional atrophy of the inner table which is a most regular accompaniment of growths of the cerebellum of childhood. These pressure changes are very suggestive of transmitted pressure acting contralaterally, although it must be remembered that the coronal suture being the last to close may be the first to show evidence of separation incident to the pressure.

#### SUMMARY AND CONCLUSIONS

Symptoms in brain tumor have been ascribed to compression, irritation or destruction of brain tissues, and to the disturbances of the circulation of the blood lymph, and the cerebrospinal fluid. Little attention has been given to the mechanism by which the symptoms have been produced. The principle of transmission of pressure does not replace these considerations but rather suggests a *modus operandi* for them.

The symptoms attributed to an increase in intracranial pressure are due from a mechanical standpoint to (1) the obstruction of the cerebro-

spinal fluid pathways exerting its influence on the cranial vault, the cerebrum and cerebellum, and (2) to medullary pressure affecting the vagus and vasomotor centers. Symptoms pointing to disturbance in function of a definite nerve or brain area are not necessarily due to an adjacent tumor (localizing symptoms) but may be the distant result of transmitted pressure, either through intervening brain substance or by compression of a functionally important structure against a bony wall or prominence or the margin of a dural reduplication (false localizing symptoms).

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"BY THEIR FRUITS YE SHALL KNOW  
THEM"\*

A TRIBUTE

By THOMAS W. HUNTINGTON, M. D.  
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IN the honor roll of all time the names of men unselfishly dominant, men who have added to the joy of living for the multitude, are notably conspicuous.

Historians in recording the activities of adventurers have been uniformly apologetic and more than generous in their estimate of values. Oblivious to the highest essential of real greatness—a spiritual objective—they have failed to apply a moral yardstick to notoriety, achievement, and conquest. Unfortunately we have had no bureau of standards to draw a fixed line between the false and the true. Let me remind you that fame is an elusive thing, never to be mistaken for nobility. Thus we find the highways of civilization are thickly strewn with the wind-tossed ashes of laurel wreaths, and every abyss that borders the beaten paths of progress has become the graveyard of reputations.

It is a matter of common experience that men of manifold and potent influence upon the destinies of mankind, endowed liberally with the attributes of leadership—geniuses, intellectual giants—have risen suddenly to power and distinction to drop as suddenly into the shades of obscurity.

It is to be said that there are different types of greatness. The one sensitized by passion for universal power, blinded by an uncurbed egotism, stakes its very existence upon physical supremacy, despotic rule and utter disregard of human rights. The other is inspired by infinite faith in the vital import of moral character, the sublime capacity of thought in the demonstration of truth and the interpretation of mysteries. Thereby it becomes the challenger of error, the champion of exactness. Never is there a turning aside from the broad path of honor on the plausible pretext that the end justifies the means. There is no rendezvous with the unproven and no liaison with pretense. But above and beyond all there is the inspiration to interrogate the future and to disclose nature's arcana whose meaning neither poet nor sage nor prophet has ventured to interpret.

Out of the unknown emerged "The Man of Destiny"—ambitious, subtle, relentless—he dreamed a dream of limitless empire. Holding to the doctrine that victory rests upon an overwhelming armament he lived in the very lair of that unspeakable cult whose philosophy was a century later voiced by Treitschke. Reckless of tragedy he gambled with that will o' the wisp—warfare. Usurping a throne he won brilliant victories, terrorized Europe, and became the obsession of France. But as the day of retribution dawned he awoke to find his career closed, his dream a nightmare and that the edifice he had built, every

vestige of which was stained with the blood of nations, had crashed and crumbled.

As the curtain dropped upon the tragedy of the Corsican, there entered upon the stage another actor, another man of destiny. Of humble birth, the son of a tanner, he also was a dreamer; but his vision found realization in victories won in the peaceful strife of science. His creed, his faith, were embodied in his own words: "I hold to the unconquerable belief that the future belongs to those who accomplish most for suffering humanity."

Save as an afterthought, he had small concern with the ultimate details or the complex technique of that department of medicine which most interests this audience. But you are reminded that very often the spirits of great events stride on before the happenings. What may have been to him an apparition—the product of a splendid optimism—under the marvelous wizardry of Sir Joseph Lister—became an actuality, and each succeeding generation of the apostles of the healing art have knelt humbly and gratefully at the shrine of the immortal teacher, the miracle worker, "*the most perfect man who has ever entered the kingdom of science, Louis Pasteur.*"

If by chance this brief recital be held by any of you as an intrusion let me appeal to Emerson's aphorism—"The law-giver of art is not an artist," and, add without apology, the law-giver of surgery is not a surgeon.

Louis Pasteur was born December 27, 1822, beneath the roof of a humble home in a French village. On September 28, 1895, in his seventy-third year there passed from this life the high priest of science—the master.

His birthright was the product of parentage of a robust type of manhood and womanhood. On either side capacity for sustained effort, sincerity of purpose and limitless faith in things unseen were ever manifest. From such a union sprung the youth of artistic temperament, liberally endowed with the inscrutable faculty of inquiry—that potent force behind the explorer which finds its ultimate fruitage in discovery.

Herein is disclosed the secret of his life, an idealism that was ever present as an incentive in his search for the hidden things in nature's treasure house.

Whether or not he possessed that occult thing the world calls genius was of small moment. His great adventure was to fill the place God made for him. Should he fail in this, if he did not infuse into the world's social, economic and scientific activities a beneficent influence he would live under the curse of profitless endeavor. That nature's vineyard had need of him was his deepest conviction and he accepted without reserve Voltaire's dictum: "Not to be occupied and not to exist amount to the same thing." His appraisal of conduct was expressed in terms of achievement. Originality was his shibboleth and he never worked under a reflected light.

With such a background, with the tradition of an inspired enthusiasm for truth-seeking and productive scholarship, we behold the youth in the

\* Read before the General Surgery Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



transition period between adolescence and early maturity. Called to the *Ecole Normale*, he at once became a teacher of teachers, among whom he was ever in the van of the student body. With characteristic modesty he assumed in life the rôle of leader in scientific research. His discoveries in metallurgy had established a new foundation for future chemical deduction. His solution of the abstruse problems of fermentation as related to viticulture and brewing was the salvation of those interests, and today Pasteur stands as the pioneer in the creation of that very vital factor in the world's industries, the experiment station.

Of deep significance was his edict that progress, welfare and profit are in direct ratio to the vigilance of the man with the microscope, the crucible and the test tube. In affirmation of this statement you are reminded that in the laboratories of one of our industrial organizations three thousand men are engaged in research.

Pasteur, a Frenchman, was a devoted lover of France. Her art, her literature, her science, her national life were at once his heritage and his hostages. All that he might produce, his life's work, were a part of France and were relegated to her keeping.

When in 1870 political France, under leadership of that royal degenerate, that pitiable caricature of his namesake, was lured to a resort to arms by the Iron Chancellor, the inevitable happened. Her armies were destroyed, her ruler became an outcast, Paris was besieged, and under the régime of a merciless conqueror chaos reigned. In the wake of the debacle which culminated at Metz, the nation lay prostrate, desolate, hopeless. Industries were paralyzed, university activities were suspended, her laboratories were indefinitely closed and opportunity for service in Pasteur's sphere seemed at best remote. At this psychological moment, and before he had regained his composure, there came to him from Italy an urgent invitation to resume his work at the University of Pisa. The call was both unexpected and alluring, but he was hesitant in making response. While the matter was still in abeyance there came a second call coupled with an assurance of liberal compensation. Instantly and unreservedly his decision was made. In a gracious letter of appreciation he declined the generous proffer, appending thereto these words, "I should deserve the penalty of a deserter if I sought, away from my country in distress, a material situation better than she can offer me."

Facing a situation at once perplexing and disheartening he resumed his habit of proceeding from the known to the unknown. With an assurance born of human interest he rallied his scattered forces and sought new fields of endeavor. Distress signals from sources humble and exalted met with quick response, and he immediately became a powerful factor in the rebirth of the nation's economic welfare.

The crowning triumph, which more than any other immortalizes the name of Louis Pasteur, is found in his exposure of an untruth—that age-old fallacy of spontaneous generation. Herein was disclosed what in artistic parlance is the dis-

appearing point, the point toward which all lines of his manifold activities converge. After twenty years of intensive study of ferments as related to vegetable and animal life, with every progressive step in his researches confirmed by the unfailing test of experiment, he unreservedly voiced a message embodying the universal law—that micro-organisms invading organic matter were of atmospheric or extraneous origin. At that moment the scientific world stood upon the threshold of a new régime. Veritably this was the beginning of the end of the old order. Such a pronouncement, subversive as it was of all tenets regarding creation, aroused many and bitter antagonisms. The priesthood steeped in fundamentalism pronounced it revolutionary—heretical. Schoolmen, pseudoscientists, teachers eminent in their day joined in a storm of protest. Accepting the challenge of his adversaries and detractors, Pasteur retraced his every step. At the behest of universities, of the Paris Academy, and finally of a specially appointed commission, he reproduced the evidence upon which he had predicated his doctrine.

No link in the chain he had forged was missing. The line of demarcation between fiction and fact was drawn. The law he promulgated with a boldness of affirmation that compelled conviction proved unassailable. Thus all doubts were dispelled, his contestants were in default, the struggle ended, and skeptics who came to scoff sought the confessional.

In his forty-sixth year he encountered an appalling tragedy which cast a shadow over his future. A grave cerebral lesion suddenly arrested his activities and for a time menaced his existence. Fortunately his mental faculties were unimpaired and his intense enthusiasm for discovery endured. As an aftermath of this incident he was confronted by an ever present sense of weariness from which there was no escape. With resignation that was pathetic and courage that was superhuman he resumed his place and carried on.

His earlier researches in animal husbandry had proven the close analogy between prophylaxis and immunity in human subjects. With the inspiration of an artist he proceeded to complete the picture he had envisioned—a rational, unassailable policy in wound treatment. His first adventure in this field occurred during the Franco-Prussian War. Horror stricken, he witnessed the never ending tragedies in field and hospital. In defiance of ingenuity, skill and experience, septicemia, hospital gangrene, and all the terrors those words imply were universal. Baffled by the constant menace of infection, surgical procedures even of minor importance were of doubtful propriety and untold thousands of lives were sacrificed on the altar of empiricism.

Disheartened by such a spectacle, Nelaton, distinguished surgeon of his day, exclaimed in despair, "He who should conquer purulent infection, would deserve a golden statue."

With no heed to the golden image or of material profit, with human welfare as his sole incentive, he sought further conquest. Enfeebled in health and worn almost to the breaking point, the



ruling passion of his life—the pursuit of truth—dominated his activities.

Thenceforth the hospital was interwoven with the laboratory as a field of clinical research, with the ultimate result that the hospital, as we know it, became one of the world's great economic institutions, indispensable to the masses, a luxury for the few, and a blessing to all.

In both hospital and laboratory Pasteur was the presiding genius. To him escape from the ghastly circumstance of wound infection by the intervention of rational protective measures was beyond dispute. Very earnestly he pleaded for cleanness in every phase of surgical technique and, coincidentally, for an efficient barrier to the ingress of infective germs. Herein lay the secret of surgical asepsis, whose advent proved one of the richest legacies to mankind. Transition from the old, the primitive, the empiric, to the reign of rationalism which made of surgery what it is today, a fixed science, is an oft-told tale. Henceforth the architect of an edifice committed to his pupils, his colleagues and his disciples the task of its completion.

We come now to the romance of his later years, his adventure with the most deadly and dreaded of all diseases. In dealing with domestic animals he had discovered the potency of attenuated virus as related to prophylaxis and he entered at once on the heroic task of applying the method in the prevention and cure of rabies. His power of concentration in this field was clearly manifest. Nearly five years of uninterrupted effort were spent in obtaining convincing evidence that a dog could be inoculated with rabetic virus of exalted potency and restored to health by serial vaccinations with an attenuated virus from identically the same source. During this period he was assailed by the opposing force of disbelievers who waylaid his every step. Emboldened finally by abundant proof of the validity of his method he was prepared to extend his ministrations to human subjects. Fully realizing the responsibilities here imposed he encountered his first opportunity which was presented by the Alsatian boy who had been gravely bitten by a rabetic dog.

Comprehending that the undertaking was venturesome, and after many anxious hours, his decision was made. You can imagine better than you can be told what were his experiences during the slow progress of treatment and during the succeeding weeks. Finally with full promise of victory, exhausted by the stress of doubt, anxiety and fear, he was forced to suspend his activities and seek protracted rest and relaxation.

Renan in his appreciation of Pasteur made splendid appeal when he said "There is something in your experience which belongs to Galileo, Pascal, Michelangelo or Molière; something which gives sublimity to the poet, depth to the philosopher, divination to the scientist."

So we of the twentieth century, viewing the picture whose vague outline has been drawn, will accord to a reversal of the sentiment, that if one can write a book, preach a sermon or invent a mousetrap better than another, the world will

make a beaten pathway to his door and join in loud acclaim to him who has made not a beaten path, but a broad highway to the habitation and the heart of every human being. With silent worship of the great of old let us salute the memory of Louis Pasteur, as among the dead, uncrowned, unseparated sovereigns who still rule our spirits from their urns.

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## THE ORIGIN OF THE WORD "ANESTHESIA"\*

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THE word "anesthesia" is of Greek derivation and signifies loss of sensation, especially of tactile sensibility. This was the definition of a word of very little use or importance. The present use of the word "anesthesia" to signify induced insensibility to pain during surgical operations dates from September 30, 1846.

Ancient, medieval and modern history furnish numerous examples of the use of drugs or other media, which by some means of dulling consciousness bring about partial or complete unconsciousness. Homer in his "Odyssey" caused Helen of Troy to put some drug into wine to "lull all pain and anger, and bring forgetfulness of every sorrow." Some believe it to have been mandragora, others maintain it was opium.

Herodotus, a Greek historian, five hundred years after Homer, tells of a custom among the Scythians of inhaling the fumes of a variety of hemp, which produced an exalted mental state, followed by sleep.

The chronicles of ancient Rome record the sayings of the Priestess Pythia of the famous Delphian Oracle. Her ravings were attributed to the inhalations of carbon dioxide which is supposed to have been generated by a natural phenomenon in a cavern of the temple of Apollo, and of which there is an example today in the Grotto del Cane near Naples.

Pliny, Roman historian, described the use of mandragora and described the custom of giving it to relieve the sufferings of victims of crucifixion.

Galen, the Greek physician, often called the father of medicine, mentions in his writings the power of mandragora to paralyze sensation and motion.

Hoa-tho, a Chinese surgeon, in the third century, employed a preparation of hemp to stupefy his patients. Hemp was also used by the Egyptians under the name of hashish.

The soporific effects of mandrake are alluded to by Shakespeare, who made frequent mention of anesthetizing draughts, the composition of which was not indicated.

A German work by Meissner, published in 1782, mentions the case of Augustus, King of

\* Chairman's address, Anesthesiology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



Poland, who underwent an amputation while rendered insensible by a narcotic.

The practice of the Assyrians in producing a temporary unconsciousness by the compression of blood vessels before circumcision was revived by Calverdi in the seventeenth century, who compressed the nerves and blood vessels of the parts to be operated upon. About this period, an Irishman named Greatrakes was said to produce sleep by his magnetic touch or "the laying on of hands."

One hundred years later, Mesmer, a Swiss physician, investigated along scientific lines the phenomenon of animal magnetism, and applied his method which was known as mesmerism to cure disease and to produce a trance-like state in which there is insensibility to pain.

The application of cold was used in Italy in the sixteenth century to produce local anesthesia, and in 1807 Larrey, Napoleon's surgeon, reported that amputations done on the field of battle at very low temperatures were performed painlessly. Freezing with ether spray and with ethyl chlorid became the later development of this principle and is still used in minor surgery.

At the close of the eighteenth century, modern surgical anesthesia was foreshadowed by the following discoveries:

Of hydrogen in 1766 by Cavendish; of nitrogen in 1772 by Rutherford; of oxygen in 1774 by Priestly, and also by Priestly, the discovery of nitrous oxid that same year.

These gases were first used therapeutically for the inhalation treatment of phthisis and other diseases of the lungs.

On April 9, 1799, Sir Humphrey Davy, an English chemist, discovered that after its experimental use on animals, pure nitrous oxid (laughing gas), is perfectly respirable, and he narrates that on the next day he became "absolutely intoxicated" through breathing sixteen quarts of it for "near seven minutes."

He also gave nitrous oxid to his friends and recorded their behavior after they had inhaled it. He became sufficiently well acquainted with nitrous oxid to use it for relief of headache and also for the extraction of one of his own wisdom teeth. This latter event led him to suggest its employment in surgery in the following words: "Since nitrous oxid seems capable of destroying physical pain, it may be used in surgical operations where there is no great effusion of blood." A half-century later this important suggestion was turned to practical use in surgery.

Although the anesthetic properties of sulphuric ether were unknown, the exhilarating effects of ether inhalation had become common knowledge by 1840 and "ether frolics," as they were commonly characterized, were frequently held at social gatherings and among groups of medical students.

At these gatherings some of the members would amuse the rest by their incongruous actions and exalted spirits as a result of inhaling the vapors of the drug, enjoying the intoxicating effects and pleasant sensations, and often receiving injuries which were incurred without pain. These gro-

tesque assemblies were the rudiments from which surgical anesthesia emerged.

In 1842 ether was used for the first time by Dr. Crawford W. Long, a country practitioner of Jefferson, Georgia, for the removal of a small tumor from the neck of a patient. Doctor Long was familiar with the exhilarating properties of ether from his indulgence in "ether frolics" during his college days and thereby conceived the idea of using ether to prevent pain during surgical operations. Although Doctor Long did not publish his discovery, his work was known to many of his fellow practitioners. Many years after his death the honor of "Discoverer of Anesthesia" was awarded him by Congress, and a beautiful marble memorial statue of him was unveiled in 1926 in the Hall of Fame at Washington.

In 1844 the next step in the evolution of anesthesia took place. Dr. Horace Wells, a dentist of Hartford, Connecticut, inhaled nitrous oxid or "laughing gas" for the extraction of a tooth, thus putting into practice the prediction of Sir Humphrey Davy. Elated by his success, he employed it with success in his daily practice. Later he made an unsuccessful attempt to demonstrate painless extraction under nitrous oxid gas before the students at Harvard Medical School. His dramatic failure so preyed upon his mind that a few years afterward he committed suicide.

It is to William T. C. Morton, a dentist of Boston, that the honor of presenting the first successful demonstration of ether anesthesia to the world belongs. He was a former pupil and associate of Dr. Horace Wells. Doctor Morton had invented an improved process for making artificial teeth. He was using this invention, but was handicapped by the fact that patients would not submit to the agonizing process of having the roots of their teeth removed. Following the custom of the time, the artificial teeth must be fitted over the decaying roots. That he might find some way to overcome the pain attending the removal of these roots was his constant thought and hope. He experimented with drugs and with hypnotism and on the suggestion of Doctor Jackson used ether successfully to anesthetize his dog and various insects. One day a jar of ether was accidentally spilled on the floor. Doctor Morton sopped up some of the ether with his handkerchief and inhaled the vapor. He noted its benumbing effect and said, "I believe that I could have had a tooth extracted painlessly while in that condition." That same evening, September 30, 1846, he had the opportunity of anesthetizing one Eben H. Frost, who applied at his office for the relief of a toothache. He wanted to have his tooth extracted but was afraid of the operation and asked if he could be mesmerized. Doctor Morton replied that he had something better than mesmerism. He seated the patient in the operating chair, selected a forceps, saturated his pocket handkerchief with ether and directed the patient to inhale the vapor. After a few minutes the patient was lost in sleep. Doctor Morton then extracted a deeply seated bicuspid tooth. Following an interval of strained attention on the part of Doctor Morton and two



witnesses, the patient awoke and saw his tooth lying on the floor. The next day the *Boston Journal* stated: "Last evening, as we were informed by a gentleman who witnessed the operation, an ulcerated tooth was extracted from the mouth of an individual without giving him the slightest pain. He was put into a kind of sleep by inhaling a preparation, the effects of which lasted about three-quarters of a minute, just long enough to extract the tooth."

The enthusiasm of Doctor Morton over his discovery was boundless. He entirely neglected his dental practice and devoted all of his time to experimenting with what he had found, and in devising an inhaler for its use.

On the morning of October 16, 1846, the operating room of the Massachusetts General Hospital was filled with members of the staff of the hospital who had assembled to witness the success or failure of Doctor Morton in demonstrating his wonderful discovery. The operation—removal of a tumor of the jaw by Dr. John Collins Warren—was scheduled for ten o'clock. At ten o'clock Doctor Morton had not appeared and, after waiting some minutes longer, Doctor Warren decided to go ahead with the operation without him. Just then Doctor Morton arrived with an apology that he waited for the completion of his inhaler. The scene was now laid for one of the most far-reaching events in the history of medicine. As the operation progressed a hush fell upon those present, followed by a period of absolute silence. The struggles and agonizing screams which had attended previous surgical operations were absent. The patient showed no sign of pain. The operation completed, Doctor Warren turned to the physicians present and said, "Gentlemen, this is no humbug."

The room in which this historic event took place is still preserved, and the sixteenth of October is celebrated each year as "Ether Day."

The first notice to the medical profession of Doctor Morton's discovery appeared in the *Boston Medical and Surgical Journal*, October 21, 1846, and reads as follows:

Strange stories are related in the papers of a wonderful preparation, in this city, by administering which, a patient is affected just long enough and just powerfully enough, to undergo a surgical operation without pain.

"The greatest gift of medical science to humanity" was without a name. It was called:

Doctor Morton's discovery; Doctor Morton's preparation; etherism, ether inhalation, ethereal inhalation; insensibility in persons requiring surgical operations; letheon and many other terms and phrases.

The name finally decided upon is stated in the following letter to Doctor Morton from Dr. Oliver Wendell Holmes:

Boston, November 21, 1846. My dear Sir: Everybody wants to have a hand in a great discovery. All I will do is to give you a hint or two, as to names, or a name to be applied to the state produced and the agent.

The state should, I think, be called anesthesia. This signifies insensibility, more particularly (as used by

Linnaeus and Cullen) to objects of touch. (See Good, *Nosology*, p. 259.) The adjective will be anesthetic. Thus, we might say, the state of anesthesia, or the anesthetic state. I would have a name pretty soon, and consult some accomplished scholar such as President Everett or Doctor Bigelow, Sr., before fixing upon the term, which will be repeated by the tongue of every civilized race of mankind. You will mention these words which I suggest for their consideration, but there may be others more appropriate and agreeable. Yours respectfully, O. W. Holmes.

The word "anesthesia" which Doctor Holmes thus suggested was not immediately accepted, but it was finally adopted.

Despite the comparatively slow means of communication of the time, the rapidity with which Doctor Morton's discovery became known, and was put in use, is without parallel in the history of medicine. The news was spread through the daily papers, medical journals, and by personal letters. Thus:

On October 16, 1846 occurred the first public successful ether anesthesia.

On December 15, 1846, ether was administered in Paris.

On December 18, 1846, ether was administered in London.

So that six months after this discovery, inhalation anesthesia was known and practiced throughout the civilized world.

The prediction of Doctor Holmes that the term "anesthesia" would be "repeated by the tongue of every civilized race of mankind" has been absolutely justified.

1020 Union Street.

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#### MICROSCOPICAL EQUIPMENT—COMMENTS ON CHOICE AND USE OF INSTRUMENTS\*

##### NOTES ON THE SELECTION OF A MICROSCOPICAL EQUIPMENT

By WILLIAM M. JAMES, M. D.

Panama, R. P.

THE microscope of today, with its accessories, when produced by a reputable maker, is an instrument of precision and perfect in its parts. The testing of lenses, fascinating and useful as this is, no longer need be a necessity for the purchaser. The stands and movements are durable and exact in workmanship. Indeed, about the only factor which causes trouble is lack of knowledge of how to use the instrument, and a comprehension of what it can and cannot do.

More and more today there is a tendency on the part of physicians to leave the work of the microscope to their technicians and other laboratory assistants. Most of these and, indeed, many physicians themselves, have learned the use of the microscope by rule of thumb. It is true that stained histological and pathological sections do

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not require any special skill in microscopy for their study, but when working with fresh and unstained material and with the dark field, some elementary knowledge of the art is essential if good results are to be obtained, especially with reference to illumination. Most amateurs work with magnifications which are entirely too high and illumination which is not sufficiently strong.

#### STAND

The selection of a stand depends entirely on the use to which it will be put. If the instrument is to serve for both laboratory and field work, one of the modern portable stands should be chosen. This may be equipped with a mechanical stage, triple nosepiece, and a good condenser, and so equipped, will handle any but the most critical work, while its portability has an advantage appreciated only by those who have tried to transport the usual type of stand through difficult places. The substage can be fitted also with a dark-field illuminator, and a binocular attachment can be provided for base laboratory use. If I could have only one microscope, I should certainly select a stand of this type, whether for use in the laboratory or in the field.

If the stand is for use in a base laboratory it is always wise to select one of the better models. This should be equipped with interchangeable monocular and binocular tubes. For use in the tropics, the undetachable binocular should not be considered. While the binocular is coming more and more into favor, and justly so, in damp climates a certain amount of mould accumulates on the prisms, and some types of binocular tube must be returned to the makers for cleaning, during which time, or in case of accident to the binocular arrangement, the monocular tube may be substituted. In Panama I find it necessary to return one of my binocular tubes about every six months, and so I keep an extra one at the agent's, and notify him when to forward it to me. There is, however, no reason why these tubes should not be made so the prisms may be cleaned as readily as eyepieces, and I believe one of the British manufacturers does make such a tube.

#### ACCESSORIES

Where protracted work must be accomplished, such, for instance, as looking through a large number of stools or thick films in surveys, the saving of eyestrain by the binocular is worth all of its extra cost. Nor is there any loss in definition, as some urge. For some years I have made careful comparisons between the binocular and monocular tubes on the most difficult test objects, and the resolution and definition with the former are in every way equal to that of the latter, and in some respects they are better, particularly in low-power work. There is a perceptible loss of light with the binocular, especially with the higher powers, but this is readily compensated by increasing the intensity of the illumination, and seldom is noticed except in working with immersion lenses and high-power eyepieces.

One great fault in the leading makes of American and Continental stands is the lack of a center-

ing apparatus for the substage, except in expensive research models or when especially ordered. This should not be. In the lower-priced British models there are adequate facilities for centering the condenser and other substage accessories, and such facilities should be insisted upon by purchasers of even the simpler types of stand. More than one poor performance is due simply to dark- or light-field condensers being off center.

The dark field is coming more and more into daily use for practical purposes. The dark-field condenser should be easily attached, centered and removed, and there is no excuse today for the elaborate and clumsy models supplied by some makers. Nor is there any need for a special stand and illuminator devoted solely to dark-field work. On three of my stands the condensers can be readily changed in a few minutes. Two of these stands are expensive research models, but the third is a moderately priced Continental stand, and serves equally as well for this purpose as do those higher priced. If research work is to be considered, the substage should be arranged for oblique illumination, and in any case it should be provided with a rack and pinion, an iris diaphragm, and a stop carrier. If insisted upon, all of these can be provided for in the larger portable models.

#### OBJECTIVES AND EYEPIECES

It is a prevalent, but much mistaken conception among many users of the microscope that the higher the magnification the easier it is to see fine detail. As a rule total magnification is obtained by multiplying the initial magnification of the objective by that of the eyepiece at a given tube length. Magnification is often confused with resolution, which is that quality of the objective by which detail is defined. In a limited contribution such as this I cannot discuss the subject, but it is generally explained in the makers' catalogues or in the instruction books which should accompany each microscope when sold. The difference between magnification and resolution must be thoroughly understood if one is to have the barest grasp of the essentials of microscopy. Suffice it to say that no amount of magnification will show detail that has not first been resolved, although it may show it more clearly, and frequently does so, when resolution has been effected. Resolution depends upon the numerical aperture (N. A.) of the objective, and is in direct proportion to it, so that, other conditions being equal, an objective of 0.60 N. A. will resolve twice as many lines to the inch as will one of 0.30 N. A. Roughly speaking, with proper illumination by direct white light and the iris diaphragm contracted to two-thirds of the margin of the field of the back lens, a good objective will resolve about its N. A.  $\times 70,000$  lines to the inch, and with oblique white light, about its N. A.  $\times 95,000$ . This latter is rarely used in medical and biological work, and for most purposes it will serve to calculate in values of N. A.  $\times 70,000$  in determining the resolution desired. Total magnification should not be carried further than the



N. A.  $\times 1000$ , and for routine work the N. A.  $\times 500$  is amply sufficient.

The standard set of objectives is generally composed of what are called the low dry power, two-thirds, or 16 mm; the high dry, one-sixth, or 4 mm; and the one-twelfth, oil immersion, or 1.9-2 mm. With these are furnished two eyepieces, with magnifications of 5x and 10x respectively. These give total magnifications of from 50 to 900, and resolution of from 18,000 to between 87,500 and 93,000 lines per inch, amply sufficient for all practical needs.

For use in laboratory work, however, I should like to suggest some other combinations. Several writers, particularly the late Doctor Spitta, Mr. Conrad Beck and Doctor Coles, have also outlined similar combinations. The 16 mm. or two-thirds, is too high a power for survey work in looking for helminth infections. Nearly all, if not all, helminth eggs can be plainly seen with a 24 mm., or one-inch objective, or even with a 32 mm. objective and a 5x eyepiece. With such combinations, the field is considerably larger, and much time is saved. With a 10x or 15x eyepiece, detail may be clearly seen. These combinations are also very useful in orienting tissue sections. They should be used without a substage condenser, and with the concave mirror.

An extremely useful lens, and one but little appreciated except by experts, is the 8 mm., or one-third. This has an initial magnification of 20, and an N. A. of from 0.60 to 0.65. The latter should be obtained whenever possible, but has the disadvantage of coming mostly in the apochromatic series, and so necessitating the use of the more expensive compensating eyepieces. But so used, the results are most satisfactory. With a low-power eyepiece, it will do the work of a 16 mm. objective, and with eyepieces of 10x and 15x, it will show as much as will the ordinary 4 mm., or one-sixth. Its N. A. is as high as that obtained in practice with a 4 mm. of 0.85 N. A., since this latter objective can be rarely used at full aperture. With a properly cut stop in the substage stop carrier and suitable illumination, it gives with a good condenser an excellent dark field, without the necessity of changing condensers. With such a combination, even by using a 5x eyepiece, spirochetes can be found in fluids, and with eyepieces from 10x to 15x, their detail can be made out clearly. In these days, fresh preparations are rarely used in the diagnosis of malaria, but the parasites are more readily found in fresh preparations by the dark field than otherwise, and an 8 mm. objective of 0.60 N. A. or more with a 10x or 15x eyepiece picks them up very nicely.

But whatever may be thought of the use of the combinations above suggested, I am convinced that the 3 mm., or one-tenth oil immersion objective, is much more useful in every way than the usually supplied 1.9-2 mm., or one-twelfth. It has an initial magnification of about 72, and an N. A. of 1.30, which is ample for the most critical work in medicine or biology. The fluorite objective of this type costs but little more than the achromatic and will stand an eyepiece of 20x or

even 25x, and it takes an expert working with specially selected test objects to distinguish its performance from that of the apochromatic, except in photography. And it will work through the thickest No. 2 cover glasses, a great advantage. With a 10x eyepiece, one can see practically all there is to be seen. It should be purchased with a funnel stop, so that it can be used for high power dark-field work, although this reduces the resolution, and there is a better combination for such work, as will be presently pointed out. In the apochromatic type, with a 1.40 N. A., it is preferred by most experts to the 2 mm. of the same aperture, on account of its greater stability and longer working distance.

Another extremely useful but little known objective is the one-seventh, or 3.5-4 mm. oil immersion. This has an initial magnifying power of about 55, and the fluorite type will stand an eyepiece of 25x. Its N. A. is 0.95, and it can be used without funnel stops in dark-field work, where its performance is decidedly superior to the higher powered oil immersion lenses whose apertures have been cut down by funnel stops or otherwise. With blood films and other stained smears, it will show practically all that is necessary, and its relatively large field is very useful in searching and in survey work. It should be remembered that when the condenser is not joined to the slide with immersion oil, no objective, no matter how high its N. A., will give a working N. A. of more than 1. For several years I have used a lens of this type almost exclusively in my routine work on stained smears, reserving my higher powers for special uses. This lens is being made today with an iris diaphragm between its components. It has a full aperture of 1.01, and with a slight turn of the diaphragm can be used for dark-field work.

The high dry, one-sixth or 4 mm. objective, usually supplied, has an N. A. of 0.85. This is too high for routine work, either with fresh or stained preparations. At full aperture the glare obscures the object, and the iris diaphragm has to be closed until the N. A. is reduced to about 0.60. Obviously there is no advantage in this, and today most makers supply what is called a histological one-sixth with 0.65 N. A. corrected especially for use with stained specimens. This objective has a long working distance, and considerably more of what is called depth of penetration than has the 0.85. Theoretically this type of lens is condemned by experts and in most books on microscopy, but practically it is an extremely useful objective and, except for slight color fringes, works equally as well with fresh material. Even with diatoms, it will give excellent performances, while with stained material, such as tissue sections, its work is admirable. The 0.85 4 mm. objective is very susceptible to variations in cover glass thickness and will not perform well unless adjusted to the thickness for which it was originally corrected, and requires



special illumination. This is seen particularly when working with fresh material.

The cost of fluorite objectives, as noted, is but slightly more than that of achromatics, and the fluorite type should be selected when possible, especially when there is much fresh material to be examined, and where the dark field is used routinely. With a color screen they do admirably in photography as well, and they are very durable. Apochromatic objectives are all that is claimed for them, but they are a luxury, and not a necessity.

#### ILLUMINATION

Few users of the microscope recognize the importance of proper illumination. Any source of light that will show them their material is regarded as suitable.

The selection of a proper illuminant depends entirely upon the class of work to be done. My personal experience is that most trouble comes when the source of light is not properly managed. Light from the usual electric-light bulb, even when frosted, is not suitable without modification. A thin piece of Corning daylight glass, ground on one side, will give admirable results, especially if the condenser is racked down somewhat.

The best sources of light, such as Pointolite, and the Tungsten band filament, require special lamps, and rheostats or transformers, and must be centered and adjusted very accurately. They do indeed give most admirable performances, and a very bright source of light is highly desirable, but they are clumsy and cannot be transported easily, and for most purposes the ordinary incandescent bulb must be used. This should be frosted, of course, and placed in a box which will exclude light from the eye of the worker.

Oil lamps are not produced by American makers or used today where electricity can be obtained, but in places where the electric supply is doubtful or uncertain, a well-made oil lamp will give all the light that is necessary, and is preferred by more than one expert for all purposes. They should be specially constructed, and can be obtained from the British makers. They should be equipped with a good bull's-eye, and be freely adjustable in every direction. The ordinary table lamp can be used in an emergency, but it does not give a good light for working.

The personal equation enters largely into the problem of the intensity of illumination, but as a general rule it may be said that the untrained microscopist uses too weak a light. Most of the small substage lamps are unsuitable, and the glasses, daylight or otherwise, supplied with them are entirely too thick. The Bausch and Lomb Optical Company supply a very thin daylight glass, cut to fit the substage stop carrier, and I have found this the most useful all-around light filter.

The condensers usually supplied with the moderately priced stand are of the uncorrected Abbe type. They do very well for ordinary illuminating purposes, but cannot be used with a substage stop to make a dark field for low powers. The achromatic condenser of 1.30 N. A. costs but very little more, and should be substituted. As above

noted, the substage should be so arranged that the light-field condenser can be easily removed, and a proper centering apparatus is highly desirable.

At this time combination light- and dark-field condensers can be obtained. With a little practice these work very well, and will be found extremely useful.

#### SUMMARY

1. For combination field and laboratory work one of the larger portable stands is recommended. However, in purchasing such a stand it should be insisted upon that the substage is made so that accessories can be readily interchanged, and a swing-out stop carrier should be provided also. A binocular attachment will be found of great service, but it should be interchangeable, and not attached permanently to the stand.

2. The standard set of objectives, that is, the two-thirds, one-sixth and one-twelfth, will serve all practical purposes. At the same time it is recommended that the one-tenth fluorite oil immersion be substituted for the one-twelfth. The consideration of the other objectives above referred to is also recommended. Their cost is not great, and they will be found highly useful. The achromatic condenser should be substituted for the ordinary Abbe.

3. The dark-field condenser should be easily and readily interchangeable. And the combination dark- and light-field condenser will be found highly useful, although this should not be used exclusively in place of the achromatic condenser.

4. The use of a thin piece of daylight glass, ground on one side to modify the source of light, is recommended. This should not be too thick. The source of light should be intense rather than weak, modified suitably by proper light filters.

The Herrick Clinic.

#### PEPTIC ULCER—WITH AN ANALYSIS OF ONE HUNDRED CONSECUTIVE CASES\*

By JAMES ANTHONY GUILFOIL, M. D.  
San Francisco

DISCUSSION by Wallace I. Terry, M. D., San Francisco;  
Walter B. Coffey, M. D., San Francisco.

THERE is probably not another hospital on the Pacific Coast where so many cases of peptic ulcer are to be seen as in the Southern Pacific General Hospital in San Francisco. Our patients come from seven states; they have been through the hands of the company physicians in their home towns; and finally on account of the chronicity of their digestive disorders, have been sent to the central hospital for diagnosis and treatment.

#### CASES IN THIS HOSPITAL

It may interest you to know that in February, 1925, we had at one time in the gastro-intestinal ward, eleven cases of gastric and duodenal ulcer, nine of whom were actively bleeding. Starting with Christmas day, 1923, and running to Feb-

\* From the Section on Gastro-Enterology, Southern Pacific Hospital, San Francisco.

\* Read before the staff of the Southern Pacific Hospital, San Francisco, December 7, 1927.



ruary 3, 1924, within a period of forty days, we had eleven cases of perforated ulcer brought into the hospital. These eleven patients with acute perforation were out of a total of 820 admissions.

I have gone over the records of one hundred consecutive cases of peptic ulcer treated in this hospital in the past twenty-one months and have analyzed these cases to see what might be learned therefrom. There were ninety-two patients with duodenal ulcer, and eight with gastric ulcer. The average age of our patients was 38 years. Three were over 60 years, and the oldest, an operative case, was 66 years old.

#### ETIOLOGY

As to the etiology of ulcer there are many viewpoints. We are acquainted with its occurrence in conditions such as severe burns upon the body, in uremia, in cases of thromboses of the vessels of the stomach and duodenum, and bacterial infection. There is no doubt that irritable conditions of the vagus nerve, as vagatonia, play some rôle in the etiology. Some believe that ulcer can be caused by the absorption of toxic substances from the appendix and colon. In this hospital we have seen their coexistence, in this series, six times. We have seen cholecystitis and cholelithiasis accompanying ulcer, also six times in this series.

Rosénow preaches the doctrine of focal infection and states that the focus of infection is in oral sepsis. La Roque believes the focus of infection to be in some area drained by the portal vein. Personally I think both can be right. I believe in nearly every patient when we exclude scalds, burns and toxic conditions, that a focus of infection can be found, with presumable causative relationship to the ulcer. I am the more firmly convinced of this when, after an observation of five years, I have seen only five ulcer patients who did not have dead teeth. And in every single case of recurrent ulcer in the hospital in the past two years, oral sepsis has been noted, and usually of a very marked type.

I have often wondered of late if, by following methods similar to those used by Doctors Moody and Humber in studying the coronary circulation at autopsy, we were to inject the blood vessels of the stomach and duodenum, and take x-ray pictures of the injected vessels, we might not thereby discover something in the anastomoses, or lack of anastomoses of these vessels to explain why bacterial embolism is more prone to occur here than any other place, particularly in the duodenum. I am familiar with theories such as acid chyme in the duodenum, and of intragastric pressure at the pylorus, but incline to believe that a more rational explanation will come from a better study of the blood vessel structure of these parts.

#### SYMPTOMS OF GASTRIC ULCER

The symptomatology of well-established ulcer is quite characteristic. The start is usually obscure, due no doubt to the fact that, in the beginning and before the ulcer has eroded through the muscular and serous coats so as to involve the peritoneum, the disturbance may be slight.

But well-established ulcer gives the characteristic disturbances: pain, usually gnawing in type,

for so the majority of patients describe it, one-half to three hours after eating. The pain varies from a slight burning or heartburn to a paroxysmal agony. In gastric ulcer the pain occurs much earlier than in duodenal ulcer, frequently immediately after eating because of the mechanical irritation of the foodstuff. Taking of food usually gives relief, not always so, however, in gastric ulcer. Here liquid food is much better borne than solid food. Alkalis and vomiting also usually relieve the pain.

When the ulcer is well established, nausea and vomiting may appear periodically. This rarely occurs when the ulcer is recent. Night pain is of frequent occurrence. In our series, thirty-nine patients complained of this distressing symptom. The symptoms may be combined with those of other conditions, such as gall stones, cholecystitis, pericholecystitis, appendicitis, pancreatitis, and adhesions.

Many patients with ulcer develop a marked neurasthenia; in others a disturbance of the vegetative nervous system supervenes. Many complain of vasomotor disturbances such as cold hands and feet.

As previously stated the pain in ulcer varies from a simple heartburn or a dull gnawing pain to one of paroxysmal agony. In gastric ulcer the pain is usually located in the midepigastrium just under the sternum, and tenderness to palpation is usually located there and limited to a circular area less than two inches in diameter. However, two of our patients with gastric ulcer complained of pain in the left epigastric area, along the lower left rib margin.

In duodenal ulcer the pain is apt to be localized a little more to the right of the midline, but in this condition a characteristic pressure point is frequently absent. Stern describes a patient with duodenal ulcer who, while sitting in a chair, obtained relief by stretching out his epigastrium, and by assuming a slanting position, with the chest, abdomen and legs in a perfect incline.

Pain usually occurs at some time or other in all cases of ulcer, but there are some exceptions. Two of our operative gastric ulcer patients had their first warning by a severe attack of hematemesis, but never had pain. Another operative gastric ulcer patient complained only of gas, with a feeling of pressure in the epigastrium after eating. One duodenal ulcer patient complained of gas and a tight feeling in the epigastrium, two to three hours after eating. Another duodenal ulcer patient, with a recurrence after several years, had no pain or distress in the intervening period of time until he had a sudden severe hemorrhage with hematemesis. Many patients describe their distress as a burning, not as pain.

A patient with a gastric ulcer located high up on the lesser curvature may go for many months without pain. So may a patient with a duodenal ulcer, which is not located close to the pylorus. The first warning of trouble such patients may have is either an acute perforation or a sudden hemorrhage.

Night pain in our series of one hundred cases occurred thirty-nine times. As inquiry regarding



this symptom was not always made, it may have been more frequent. Vomiting occurs at some time or other in nearly every case of gastric ulcer unless it is a very early ulcer; and in a large proportion of all duodenal ulcer cases after the ulcer is chronic and well established. In our series all our patients with gastric ulcer gave a history of vomiting, and of the ninety-two with duodenal ulcer thirty-seven gave such a history, or a little more than one-third.

Hemorrhage in one form or another is one of the characteristics of ulcer. Often a patient's attention is first drawn to his condition by either an attack of hematemesis, or the passage of tarry stools which he notices discolor to a red the water in the toilet. Many of our patients were found to have been on soft diet for varying lengths of time before coming to the hospital; the same having been prescribed for them by their physicians at home, so that by the time they arrived at the hospital the ulcers have frequently quieted down. In such cases the examinations of their stools for occult blood were negative.

#### ANALYSIS OF ONE HUNDRED CASES

I have divided our series of one hundred cases as follows: into (1) those who have had active hemorrhages, those who suffered from hematemesis or the passage of tarry stools; (2) those who had positive tests for occult blood on two or more examinations; and (3) those whose stools were negative for occult blood. These various examinations of stools for occult blood were made while the patients were on meat-free and meat-extractive-free diets. Twenty-six had active hemorrhages with resulting anemia as shown by the blood picture, and of these, thirteen had vomited blood. Thirty-seven had occult blood in their stools; and thirty-eight had negative tests for blood. Four were not counted because of coexisting hemorrhoids.

One patient came to us complaining only of weakness and languor. We found tarry stools and a severe anemia, the result of bleeding from a gastric ulcer. On the seventh day, after he seemed to be improving and the bleeding was arrested, the bleeding recurred, with severe hemorrhage, and death in a few minutes. This was our only fatal case of hemorrhage.

Another patient developed weakness and languor, and one week after the onset of these symptoms he vomited blood which gave him his first inkling of the serious nature of his illness. Rarely is hemorrhage from ulcer fatal. Its treatment is usually a medical problem. With rest and total abstinence from food the hemorrhage usually ceases. In a few cases we have resorted to transfusions, with very beneficial results.

While hemorrhage from an ulcer is not necessary for the diagnosis of the ulcer, it nevertheless is a quite indicative symptom, since it occurs in about one-half of all gastric ulcer cases. In general, we might say that hematemesis is more apt to occur in gastric ulcer, while bleeding into the in-

testines with the resulting tarry stools, is more usual in duodenal ulcer.

Perforation is one of the common complications of ulcer. In our series this occurred in ten patients. One patient, a Mexican, was admitted in severe shock with all the typical symptoms of perforation. Immediate operation was advised, but the family refused permission. The man recovered, and subsequent x-ray examination revealed a penetrating ulcer of the lesser curvature. The perforation had been sealed off and general peritonitis thus had been prevented. There were eight cases of acute perforation operated upon, all of whom recovered, except one whose perforation was five days old when he was brought in. One patient with an acute perforation had been in the hospital one year before, when the diagnosis of duodenal ulcer and syphilis had been made. The patient said he was not told he had an ulcer and so paid little or no attention to his diet. One year later he had his perforation. One patient, 54 years of age, returned on account of a recurrence of his ulcer symptoms. This man had undergone an operation for a second perforated ulcer two years before. One patient was suffering from a slow perforation, which was also relieved by surgery.

Of course the treatment of perforation is prompt surgical intervention. In cases where the perforation is small and oozing slow, diffuse peritonitis may not take place, due perhaps to an empty stomach and absent peristalsis, the omentum or adhesions sealing off the opening. Then adhesions may form with other organs or may deform the stomach or duodenum, giving rise to a perigastritis, the results of which may be even more distressing than the original condition. And this may require more surgery to relieve than the earlier pathological state. One patient with an acute perforation who was operated upon within four hours of his perforation, in five days developed an abscess of the lung, from which he recovered.

Of our patients suffering from ulcer, and having complications, there were four with hemorrhoids severe enough to require surgical treatment. There was one patient with a cyst of the thyroid, one with an exophthalmic goiter, and one with an enlarged prostate who underwent a prostatectomy. There were six with chronic appendicitis, six with chronic cholecystitis, four with chronic tonsillitis, one with double mitral disease, one with arthritis of the spine, and one with diabetes. Out of one hundred cases there were four with syphilis.

Oral sepsis is the usual concomitant condition, and so common is it that we do not even bother to add it to the diagnosis on the charts. We almost take it for granted that it is present, for we see it so often in these cases.

The patients who had undergone previous abdominal operations other than for ulcer were eight, all of whom had had their appendices removed. Of these who had appendicitis several were acute and one of the gangrenous type, and

the appendicitis seemingly had no relation to the ulcers so far as we can tell from their case histories, for the ulcer symptomatology is subsequent to the appendiceal operations.

#### RECURRENCES OF THE DISEASE

In a study of the previous hospital entries of these patients we find one patient had been in the hospital one year before for "acute gastritis." One entered in 1919 for "chronic intestinal indigestion," and again in 1921 for "chronic appendicitis and appendectomy." Another was in the hospital in 1912 for "chronic intestinal indigestion"; one for "appendicitis and duodenal ulcer" some eight months before; one for "mucous colitis and chronic appendicitis" two years before; one for duodenal ulcer eight months before; one was here in 1911 for "chronic gastritis," and again in 1918 for "gastritis" and "hyperacidity" and also in 1919 for "ptosis and gastritis." One man was here in 1919 for "chronic intestinal indigestion" and again in 1922 for "chronic appendicitis and appendectomy." One was here in 1917 for "gastro-intestinal indigestion."

Of those who returned on account of a recurrence of their duodenal or gastric ulcer symptoms there were four who had undergone surgical treatment for their ulcers, one five years, one four years, one three years, and one three months previously. Each of these four admitted dietary indiscretions. They had been eating anything and everything they pleased. Two of these men who had been operated upon for acute perforation were discharged from the surgical service and claimed they had not been given any instructions as to diet.

Of five nonoperative patients who returned on account of a recurrence, each admitted eating anything and everything; one being the patient with an accompanying syphilis who claimed we did not tell him he had an ulcer. The number of hospital days consumed by these men returning on account of dietary indiscretions is 111, a clear economic loss, and an unnecessary one. There were twenty-five patients out of this series operated upon for ulcers, nine of which were for acute perforation. There were sixteen operated upon for chronic ulcers, of which three were gastric and thirteen were duodenal and pyloric.

#### SURGICAL INDICATIONS

There are four conditions which make surgery imperative for ulcer patients: namely, persistent pain, continued bleeding or recurrent hemorrhages, stenosis of the pylorus with retention, and perforation. These sixteen patients all required surgery for one or more of these conditions. Nine of these patients had been in the hospital before and had undergone treatment for their ulcers. Of this nine six had not followed the dietary instructions given them when they left. Three

had followed the diet religiously, but had to return for surgery on account of persistent pain; and these three had duodenal ulcers lying in or close to the pylorus. Once an ulcer close to the pylorus becomes hard, indurated and calloused, medical treatment is of no avail. The only real relief is in surgery.

#### GASTRIC ANALYSES

The gastric analysis in ulcer usually shows a high acidity. This does not always hold, however. A gastric ulcer high up near the cardia or a duodenal ulcer not near the pylorus may not produce much change. No absolute rule can be deduced from the acid contents of the stomach. One patient, 52 years of age, who had been operated upon for duodenal ulcer on account of severe and continued bleeding, had a total acidity of 10 and a free acidity of 2. Another patient, 66 years of age, who had been operated upon for an acute perforation of a duodenal ulcer, had an acidity some days after operation of 48 total and 10 free. Another duodenal ulcer patient with a history of alcoholism had an achlorhydria on two examinations. This would indicate that the gastric acidity is only a relative thing. We attach more importance in diagnosis to achlorhydria than to the amount of acid. Of course fractional test-meals are more accurate, but very trying and time-consuming. And after all, the information to be gained from the fractional test as against the simple Ewald meal and removal in forty-five minutes is more academic than practical.

#### DIAGNOSIS

The diagnosis of ulcer as a general thing represents no unusual difficulties. The basic phenomenon underlying the symptomatology of ulcer is pylorospasm, which is characterized by pain of varying intensity, coming on at various times after eating. The pain may vary from heartburn, simple burning or a hunger pain to a severe paroxysmal agony, with a sense of fullness, gas, etc. The sensation of hunger is produced by tonic and peristaltic contractions of the stomach when empty or nearly so.

I always teach interns that in the diagnosis of ulcer they should first recognize pylorospasm and then find the cause of it. Its causes are many:

1. Nervous, such as disturbances of the autonomic nervous system, as in mucous colitis, nicotine poisoning.
2. Ulcer. Duodenal ulcer produces the so-called hunger pain by many erroneously considered diagnostic of ulcer.
3. Gastritis.
4. Pyloritis, as in cases with a fissure or erosion with hyperacidity.
5. Duodenitis.
6. Cholecystitis. In an early cholecystitis pylorospasm is frequent. This with relaxation of the sphincter of the cardia allowing regurgitation



into the esophagus illustrates beautifully a reflex upset in the autonomic nervous system.

7. Chronic appendicitis is frequently the cause of pylorospasm, particularly the chronic retrocecal appendix.

8. Adhesions.

9. Uterine disease.

10. Eye-strain.

11. Anomalies of secretion.

12. Extra gastric causes, such as fissure in ano, kidney stone, tuberculosis.

In short, almost any disturbance in the abdomen can reflexly produce pylorospasm. The stomach has been called the mouthpiece of the belly, and is frequently the first to rebel when organic disturbances occur in the abdomen. I saw a patient two years ago who had undergone treatment for a duodenal ulcer for six months, but who was suffering instead from an early double apical tuberculosis.

If we first recognize the pylorospasm and search for its cause as enumerated above, the chance of an error being made will be reduced to a minimum. The patient who presents himself with a long history of periodic attacks of pylorospasm associated with hematemesis or the passage of tarry stools, is quite typical, and with the assistance of the x-ray the disease process is easily diagnosed. Of course cirrhosis or portal obstruction must be ruled out. Moynihan has pointed out that 5 per cent of all cases of chronic appendicitis give a history of hematemesis at some time or other.

Vomiting in ulcer usually brings prompt and complete relief of pain and distress. Not so in chronic cholecystitis or appendicitis. In cholecystitis the digestive disturbance is more of a gaseous indigestion, with bloating and distention, and reacts differently to different qualities of food; whereas in duodenal ulcer the quality of food makes little difference. And in cholecystitis in addition to tenderness over the gall-bladder region, the pain is referred into the right back, usually under the shoulder blade; or again, it starts there and is referred around in front to the gall-bladder region. Mucous colitis, which is really not a colitis at all, but in all probability, a disturbance of the vegetative nervous system is another frequent cause of pylorospasm and is usually diagnosed on the negative x-ray study, presence of mucus in the stools, and the finding of many hard fecal masses in the colon. The patient's general nervous condition is of help in the diagnosis.

There is no one single method for diagnosis at our disposal which equals the roentgen examination. On the other hand I think this is the one thing that makes for slovenly work in the diagnosis and treatment of all digestive diseases, because the tendency now is to study these cases less carefully, to take a less careful history, make a less thorough physical examination, to omit gastric analyses, blood examinations, to make no ex-

amination of the feces, but to send the patient at once to the roentgenologist and accept his report as to the diagnosis as final.

There should be the closest coöperation between the clinician and the roentgenologist. We frequently go over the history, clinical, laboratory and x-ray findings together, and if necessary recheck the patient again, clinically and roentgenologically, and in this manner the best results are obtained.

It is not possible always to demonstrate an ulcer with the x-ray, but there have been only a few cases in this series where the clinician and roentgenologist have disagreed or rather, I should say, where the clinician has stood by the diagnosis of ulcer in the absence of x-ray proof. There have been just three cases in this series where the roentgenologist made a diagnosis other than ulcer and which we diagnosed as such because of a long history of typical periodic attacks of pylorospasm accompanied by hemorrhages and anemia, with no other causes to explain it.

#### TWO CASE REPORTS

We learn by our mistakes, so I report two interesting cases.

The first patient gave this history: appendectomy five years before; jaundice, one year after his appendectomy. Complained of gas and fullness in the abdomen two to three hours after eating, not relieved by food. Soreness along right rib margin. Occasional vomiting with relief. No blood in stools. Had been on soft diet for a month. No relief. With the history of jaundice and findings we sent him only for gall-bladder plates, after intravenous injection of iodekon. The gall bladder showed up with a kink in it. We made a diagnosis of cholecystitis. At operation an ulcer was found in the pylorus.

The second patient complained of a steady pain in midepigastrium, associated with meals. Much bloating and belching. Six weeks ago patient had a severe pain in the right upper quadrant; since then these sharp pains had occurred three or four times a day, and at night. The attending physician at Ogden pronounced him jaundiced two weeks before. No blood in stools. Tenderness over gall bladder. At operation an ulcer was found in the pylorus, and the duodenum was plastered up under the liver by adhesions.

*Comment*—In both these patients we made the mistake of not doing a complete gastro-intestinal study with the x-ray. If we had done so we would have discovered the ulcers. And we were new in the use of the dye and were misled by it. This leads me to say that ulcer located in the pylorus is very deceiving. It frequently is not relieved by food, but is relieved by vomiting and the use of alkalis. An ulcer at the pylorus does not always produce stenosis and retention. In all of our operative chronic duodenal ulcer cases the ulcer was either in the pylorus or very close to it. And these are usually the ulcer cases that are operated upon because of persistent pain.

#### TREATMENT

In the treatment of ulcer the first essential is REST, spelled with capital letters. Absolute rest in bed is the first requisite to be insisted upon. The rest should be for at least twenty-one days. Three weeks, and in some cases six weeks.

Our routine treatment consists of putting the suspected ulcer patient to bed at once on a milk

diet. If bleeding is not suspected a gastric analysis is made the following day. After examination by the visiting staff physician roentgenological examination is ordered. After forty-eight hours of meat-free diet the stool is sent to the laboratory for examination, and another specimen sent again forty-eight hours later. After four days we have all our laboratory, clinical and x-ray findings. We see the x-ray plates with the roentgenologist and discuss the case with him.

If ulcer is found our course of treatment is then instituted. First of all a search is made for focal infections. As mentioned before, oral sepsis is so common in ulcer patients that for the past two years the staff physician usually writes an order for x-ray examination of the teeth at the same time that he orders the gastro-intestinal studies. He is sent to the otolaryngologist for examinations of the throat and sinuses. The prostate is examined, and usually the rectum also, for hemorrhoids, proctitis or fissures. If focal infections are found they are eradicated, or the patient advised to have the same attended to on his discharge from the hospital.

The treatment of gastric ulcer we consider a surgical problem. We are ever mindful of the danger of gastric ulcer undergoing malignant change, and no one can say even in the smallest gastric ulcer, whether malignant changes have already started or not. And gastric ulcer, particularly if it is an old indurated, calloused ulcer is not amenable to medical treatment. However, I have seen patients with gastric ulcer make a complete recovery under dietary regimens. Patients whom I have rechecked later with x-ray studies and in whom I found the ulcer gone, with peristaltic waves passing normally over the old ulcer site. But these are always recent ulcers, and never ulcers of long standing. Sometimes patients will not submit to operation, in which event we are forced to use rest and dietary regimen in the treatment, but the responsibility here is put squarely up to the patient. We have frequently used protein therapy such as the hypodermic injections of milk in such patients.

Patients with ulcer producing stenosis at the pylorus are studied. If there is retention at twenty-four hours, operation is advised at once. Those having partial retention at six hours, if there is no active bleeding, we frequently keep at rest on a dietary regimen for several days. If after a few days they are free from distress we feel much encouraged. After ten or twelve days the emptying time is rechecked with the x-ray.

It is surprising to see the number who improve—in whom we find a normal emptying time after a few days of rest. If, however, there is no improvement we then consider the problem a surgical one.

If a patient at rest and under dietary regimen continues to have pain persisting for twelve, four-

teen or sixteen days, we know then that we are dealing with some complication such as ulcer in the pylorus, perhaps producing cicatricial stenosis, or an ulcer with its base adherent to a neighboring organ as to the liver, or with an accompanying cholecystitis or appendicitis. Persistent pain even after three days is very suspicious of some complication and often means that surgical intervention may be necessary.

Ulcer patients with active hemorrhage are kept at absolute rest in bed. Absolutely nothing is given by mouth. Blood counts are made daily, and sometimes oftener. An ice bag is put on the abdomen. The patient's blood is typed and transfusion carried out if the blood count falls too rapidly or becomes very low. Thirst is controlled by rectal injections of tap water and by the Murphy drip method, with glucose and soda. We do not worry about starving a patient for six, seven, or eight days, but it is rarely necessary to do so for so long a period. Active bleeding usually ceases within a very few days after the enforcement of rest and withholding of food. We have only lost one patient from hemorrhage in years, and that man died very suddenly and unexpectedly.

The uncomplicated case of duodenal ulcer should be kept in bed for twenty-one days. The average length of time in the hospital for this series of one hundred cases is twenty-four days, but as this includes twenty-five surgical cases, the average length of time in the hospital for the uncomplicated cases is much less than twenty-four days. Many of our patients live here in San Francisco and we allow them to go home in a week or ten days and continue at rest there.

Of course the dietary regimen is equally as important as rest. Many fancy diets have been devised, associated with many varieties of medical therapy; such as the Leube-Ziemssen, Lenhartz, Sippey, Jarotsky, Einhorn duodenal feeding. Most of these require much work and much patience, which we feel is quite unnecessary. The Lenhartz is the simplest of all. Doctor Brown used it in the hospital for years. The principle underlying the ulcer diet is to give a diet of high nutritive value and ready digestibility. The Lenhartz diet conforms to this idea, but as patients lose weight on this diet we have modified it, calling our modification the "Brown diet" in contradistinction to the Lenhartz diet. The Brown diet has a higher caloric value and larger amounts are fed at longer intervals. We find that in nearly all cases this diet is well borne and the patients are more comfortable as their hunger is assuaged.

The routine use of alkalis we deplore. We are not convinced that a patient does any better with alkalis than without. Except as a diagnostic measure to learn if alkali relieves pain, we probably do not administer an alkali to our patients



twelve times a year. It is totally unnecessary. The duodenal ulcer patient at rest and on diet is usually free from all pain and distress within three days. Frequent feeding is the charm that renders the duodenal ulcer patient comfortable. We feel that a patient must be taught that if he wishes to be free from distress and get well he must rely upon diet alone, but when he learns that alkalis relieve his pain he is very apt to eat anything he pleases and start buying his baking soda by the pound. We put the responsibility right where it belongs—on the shoulders of the patient himself.

Upon discharge from the hospital each patient is instructed as to his diet. He is given one of our diet cards on which the foods are arranged in the order of digestibility. He is told to eat only the foods in the first column for one year, and if he has any recurrence we know that he has been indiscreet in his diet. In fact practically every patient who has had a recurrence has confessed to dietary indiscretions. All except those whom I said had ulcer in or close to the pylorus.

Our success in the medical treatment of duodenal ulcer is measured by the very few who return. It is simple and efficient. And the patients get sufficient food so that they are comfortable.

#### SOUTHERN PACIFIC (BROWN) DIET FOR PEPTIC ULCER

First day: Four ounces of milk every two hours—7 a. m. to 7 p. m., seven feedings. If patient has pain at night give 4 ounces of milk and leave 4 ounces more at bedside to be taken if pain recurs.

Second day: Add one soft-boiled or poached egg with small piece of toast at 9 a. m. and 5 p. m.

Third day: Add milk toast once at 11 a. m. Add cream of wheat at 7 a. m. and 5 p. m. Increase milk to 5 ounces per feeding.

Fourth day: May have three eggs during the day: at 9 a. m., 1 p. m., and 3 p. m. Milk toast once at 11 a. m. and cereal twice at 7 a. m. and 5 p. m.

Seventh day: Continue seven feedings of the above foods from 7 a. m. to 7 p. m. through the fourteenth day. Increase gradually the number of eggs to six a day, and the amount of milk toast and cereal. Increase milk to 7 ounces per feeding. Scraped beef, broiled lightly, with no pepper, may be substituted in equal volume for eggs if stools are negative for occult blood.

Fifteenth day: The patient is given puree of vegetables, the "increased Lenhartz" diet.

The above diet is intended for a vigorous male railway worker. If the patient under observation has distress other than night pain referred to, retention at six hours, hemorrhage, or other complication, the diet is modified by the visiting physician.

909 Hyde Street.

#### DISCUSSION

WALLACE IRVING TERRY, M.D. (384 Post Street, San Francisco)—Doctor Guilfoil has given us a most interesting paper based on a wide experience with carefully studied cases. My discussion will be limited to some of the surgical aspects of gastric and duodenal ulcers. I agree with Doctor Guilfoil that gastric ulcers

should be considered surgical conditions and that operations should be done early before obstruction, perforation or malignant changes have occurred. The ulcer should be excised with a cautery, or the stomach should be resected if the ulcer is large. The Polya resection, or one of its modifications, seems to give the best results, providing the stoma into the jejunum is not too large, and this can usually be guarded against by partially pursestringing the open end of the stomach. Where an ulcer is excised anywhere near the pylorus, spasm is quite certain to follow and either a gastrojejunostomy, a pyloroplasty or a gastro-duodenostomy should be done to prevent stasis.

The indications for operations for duodenal ulcers are not so well marked. We know that many patients are cured by medical treatment, but in a fair proportion of cases there is recurrence of the ulcer. Hemorrhage, perforation, persistent pain or obstruction are the principal indications for surgical intervention in duodenal ulcers. Where the ulcer is readily accessible it should be excised, and where it is on the posterior wall it is often wise to open the duodenum and suture it from within. The incision in the duodenum can be utilized to make a gastroduodenostomy or some type of pyloroplasty. The frequent occurrence of jejunal or gastrojejunal ulcers following the ordinary gastrojejunostomy should incline us toward some type of operation wherein the gastric juice enters the duodenum to be neutralized, instead of entering directly into the jejunum which has a low threshold of resistance to the acid gastric juice.

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WALTER B. COFFEY, M.D. (909 Hyde Street, San Francisco)—I think we have at the Southern Pacific Hospital a splendid field for the observation of these cases. Our district physicians follow up with care of the patients at their homes, so that we are in a position to check our results.

After many years of experience, made up of successes, errors, and disappointments, we endeavor to adhere to the following rules in the care of ulcer cases:

1. Routine assignment to the medical service.
2. Proper differentiation between gastric and duodenal ulcers.
3. Recognition of the medical and surgical types.
4. That all gastric ulcers are essentially surgical.
5. That lues must be recognized as one of the causative agents of ulcer.
6. That clinical evidence alone is not sufficient reason for surgical interference.
7. That the surgeon must ever keep in mind the part that focal infection plays. He should possess sufficient acumen to attribute to these various factors their proper place in disturbance of digestion.
8. The general practitioner, who occasionally practices operating, should keep his hands out of the upper abdomen, as he lacks the judgment only gained by long practice of surgery.
9. That the responsibility for operation rests heavily upon the roentgenologist for a possible error in nonsurgical cases.
10. That surgery does not relieve the patient from the necessity for medical care following gastroenterostomy.
11. That many of the troubles encountered by the patient and many of the reflections cast upon the surgeon are due to lack of supervision and advice, following the mechanical work of surgery.
12. That many so-called medical cures of duodenal ulcer are based on a questionable diagnosis, and that when sufficient evidence for such diagnosis can be presented, clinically and by x-ray, the case is well on its way to the hand of the surgeon, especially in hemorrhagic or obstructive types.

## ASTHMA AND HAY FEVER\*

## PART I

By SAMUEL H. HURWITZ, M. D.  
San Francisco

DISCUSSION by J. Marion Read, M. D., San Francisco;  
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THE RÔLE OF HYPERSENSITIVENESS  
AND INFECTION

TO the general physician who is not intimately identified with the treatment of patients manifesting some form of hypersensitiveness or allergy, the maze of recent experimental and clinical observations must be very confusing. The reported results of the value of the specific treatment of allergic patients have been conflicting enough to give rise to overenthusiasm on the one hand, and to gross skepticism on the other. It is for this reason that I have considered it worth while to present to you some of the salient points involved in a careful diagnosis of the allergic or hypersensitive patient and to point out what may and what may not be expected from treatment directed at the underlying cause or causes.

Allergy has been defined as a natural and not infrequently inherited state of human hypersensitiveness, usually but not always, to protein substances. Whether the substance is inhaled, thus coming into direct contact with the mucous membranes as in the case of pollens, cereal grains, animal hairs and dusts, or what is not often realized, ingested in the form of food proteins, the reaction of the mucous membranes is the same. In man allergy expresses itself by two lesions—edema and smooth muscle spasm. The organs affected are, for the most part, the upper and lower respiratory tracts, the skin and the gastrointestinal tract. Thus hay fever is characterized by an edema primarily of the nasal mucosa; bronchial asthma by an edema and smooth muscle spasm of the bronchi; urticaria and eczema by edematous processes in the skin; and vomiting and abdominal cramps following the ingestion of intolerable foods by edema and smooth muscle spasm of certain parts of the gastro-intestinal tract. It is rare, however, for a patient to show sensitization in only one of these localities. More commonly there is evidence of involvement simultaneously or consecutively of the cells of several membranes. In fact, more than half of the hay fever patients develop asthma due to irritation and congestion of the bronchial mucosa, analogous to that observed in the nose and throat.

Hay fever, asthma, eczema, urticaria, and angioneurotic edema may be regarded as the more common clinical manifestations of allergy. The

proof that epilepsy and migraine may be, except in unusual instances, manifestations of allergy is still lacking.

## I. DIAGNOSIS OF THE ALLERGIC STATE

There is no disease group in which a detailed history is more essential, and there are few histories more difficult for the uninitiated to obtain. It is necessary to go into every ramification of the patient's life and activities. The family history in particular must be searched for the presence of manifestations of hypersensitiveness in antecedents, for nearly 50 per cent of these patients give a positive history of allergy in some form or other. Indeed, it would appear from the work of Cooke and his coworkers<sup>1,2</sup> that the allergic state may be transmitted according to the Mendelian law of inheritance, and that allergic diseases may be regarded as truly inheritable diseases. The study of the familial background of the hypersensitive patient and his immediate surroundings are so important from the diagnostic, therapeutic and prognostic viewpoints that I consider it well to stress them further.

*Heredity*—Whereas there is little doubt that perfectly normal individuals may by sufficiently long contact, occupational or otherwise, with powerful sensitizing agents of various kinds acquire allergic diseases,<sup>3</sup> recent clinical observations have made it certain that a very large number of asthma and hay fever patients have inherited a predisposition to develop these diseases. Why this sensitivity develops more readily in certain individuals than in others is difficult to explain. It is believed that the tendency for the body cells and fluids to react to sensitizing substances is inherited just as one inherits eyes and hair of a certain color. In this way one may explain the development of sensitiveness to wheat or egg in a child when these foodstuffs are first introduced into his diet. On the other hand, foods may not trouble a child with an inherited predisposition at all, but after breathing the dust from feather pillows day after day during infancy or inhaling the dandruff from cats, dogs or rabbits while playing with them when older, he may develop this peculiar sensitivity which gives rise to attacks of hay fever or asthma.

The statistical studies of Cooke and his coworkers,<sup>1,2</sup> and of Adkinson,<sup>4</sup> have added greatly to our knowledge of the factor of heredity in allergic disease. In a carefully analyzed group of 462 asthma and hay fever patients reported in 1924 by Spain and Cooke, over 58 per cent gave a history of allergic disease in the paternal or maternal side of the family. In 91 per cent the inheritance was unilateral, that is from one parent, and in 7 per cent, bilateral. These figures are striking when compared with the occurrence of allergic diseases in only 7 per cent of 115 normal individuals who served as controls. Thus a child with asthma or hay fever is usually found to give a history of some manifestations of hypersensi-

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\* Presented in abstract at the Twenty-Fourth Annual Meeting of the Nevada State Medical Association, Bowers Mansion, Reno, Nevada, September 23-24, 1927.

Part II of this paper will appear in the August issue of this journal. The references will be printed at the conclusion of the entire article.



tiveness in a member of the immediate family or in a paternal or maternal grandparent.

The bearing of heredity on the age of onset of allergic symptoms is also of great clinical importance. In general it may be concluded that the stronger the hereditary factor the earlier the age of onset. Thus in the studies of the observers quoted, 73 per cent of children with a bilateral antecedent history began to show symptoms by the tenth year, whereas at that age only about 20 per cent of children with a negative antecedent history showed clinical manifestations of hypersensitiveness.

The fundamental inheritance transmitted from parents to offspring is *not* this or that allergic disease or a particular form of sensitization but the *allergic constitution*. One must assume that every cell and tissue of the hypersensitive individual is profoundly affected. It is not easy in the present state of our knowledge to define in terms of biologic changes in what way an individual with an allergic constitution differs from a normal person. Some of the characteristics of the allergic constitution which have been stressed by various students of this subject are hyperexcitability of the sympathetic nervous system and neurocirculatory apparatus, increased permeability of the skin and mucous membranes, and a lack of reactive power against sensitizing agents. The increased vulnerability of the skin and mucous membranes of such individuals may help to explain why it is that they become sensitized to weak allergens which produce little or no effect upon the normal person.

This newer knowledge of the importance of the factor of heredity in allergic disease has been stressed in order to point out better the reasons why the results of treatment by specific desensitization in patients with an allergic constitution are at times disappointing and incomplete. Desensitization in such individuals may temporarily remove from the field of action one or more allergens and thereby give relief from symptoms, but it cannot change fundamentally the altered reactivity of the body cells. Further studies on the allergic constitution may make it possible to attack this problem from the viewpoint of *preventive medicine*. Clinical and laboratory methods must be found and developed for the early recognition of the allergic state and steps taken to prevent unnecessary exposure of such persons to powerful sensitizing substances known to produce symptoms of hypersensitiveness.<sup>5 6</sup>

*Occupation and Environment*—The history of an allergic patient should include a detailed study of the occupation not only of the patient himself, but also of the individuals with whom he comes in contact. Occupation may have a direct bearing on the cause of asthma and hay fever, and it may frequently explain the development of sensitization after middle life. That hostlers or persons who have intimate contacts with horses may develop asthma has long been known, but that certain other occupations afford an opportunity for exposure to substances causing asthma and hay fever is only now being fully appreciated. A few such instances may be mentioned. Several years

ago a middle-aged woman came under observation who, for a number of years had been engaged in baking pastry and who had become sensitized to the protein substances in wheat; another patient, a latter by occupation, had become sensitized to rabbit hair contained in the felt which he handled. Less frequently encountered occupational sensitizations are those occasionally seen in jewelers who become sensitized to the allergen in the dust from the boxwood with which they polish their jewels.

In addition to actual contact with domestic animals and occupational exposure, careful inquiry should be made as to which of the animal epidermals, such as feathers, hair or wool, are present in the patient's environment.<sup>7</sup> It is important to bear in mind that chicken, duck, and goose feathers are used in making bed and sofa pillows, in overstuffed furniture, upholstery, and in the padding of clothing. Mattresses may also contain other animal hairs such as cattle, goat, and rabbit hair. The latter occurs in cheap dyed furs, felt hats, and children's toys. Camel's hair too must be kept in mind because of its frequent presence in coats, hats, and scarfs. Lastly, sheep wool, not an infrequent offender is extensively used in the manufacture of blankets, comforters, mattresses, rugs, and clothing.

Of the miscellaneous inhalants which may occur in the patient's environment a few deserve brief mention. Orris root, now so generally used in the preparation of face, talcum and bath powders, as well as in sachets and dry shampoos, should always be excluded as a possible cause of sensitization. Every patient with asthma, and more particularly with nonseasonal hay fever, should be questioned as to whether contact with these articles produces irritation of the eyes or nose or tightness in the chest and wheezing. When a patient's history and skin reactions indicate the presence of orris root hypersensitiveness it is well to eliminate the use of face powders, scented talcs and sachets, or to substitute some orris-free powder. The patient too should be instructed to avoid crowded places, such as theaters, ballrooms and other public gathering places, the air of which is usually surcharged with orris root.

Less common forms of sensitization giving rise to asthma and hay fever are pyrethrum, a common ingredient of insect powder, kapok, a silk wool frequently used as a stuffing for pillows, cushions and mattresses, and glue employed in the manufacture of books, furniture, shoes, etc., and brought into daily contact with the mucous membrane of the lips and tongue by licking envelopes and stamps.

In recent years sensitization to house dust has received much attention as a cause of hay fever and asthma. Cooke<sup>8</sup> and Coca<sup>9</sup> and their co-workers who made some of the early observations on patients sensitive to house dust believe that it contains a new and specific sensitizing substance concerning which little is known save that it is nonprotein in nature. Our experience coincides with that of a number of recent observers, that many patients, nonsensitive to any of the known allergens may react to a stock or autoge-



nous dust extract removal from which or desensitization with which frequently gives relief to a sufferer from asthma or perennial hay fever who has not benefited by any other mode of treatment. It has become a routine in our asthma clinic to test all patients giving a history of allergy, either with an extract of their own house dust or with several potent stock dust extracts known to give positive cutaneous reactions.

*Seasons*—Inquiry should be made as to the presence of trees, grasses and weeds in the surroundings in which the patient lives. The occurrence of coryza, lacrymation, itching of the eyes and nose and sneezing accompanied at times by complete stoppage of the nostrils during the spring, summer or fall, justifies a presumptive diagnosis of hay fever. Skin tests will usually reveal the offending pollen or pollens. Patients who have asthma complicating hay fever will frequently give a history of typical seasonal hay fever occurring one or more years before the onset of the asthmatic paroxysms. In these patients the asthmatic attacks usually occur every year coincident with the pollination of some grass or weed responsible for the patient's hay fever.

When hay fever is perennial or nonseasonal in character, the diagnosis is very often difficult and many times overlooked. This type of hay fever patient is frequently sensitive not only to a pollen, but also to an animal hair, orris root or house dust. Very often the congestion and edema of the sensitive nasal mucous membrane of the nonseasonal hay fever sufferer leads to an added infection and faulty sinus drainage. These patients usually require, in addition to desensitization, local surgical measures to remove nasal lesions and restore free nasal drainage.

*Skin Tests*—Skin tests are indispensable in the study of a patient with hay fever and asthma and, from a diagnostic viewpoint, it is a fortunate circumstance that in over 50 per cent of patients the cells lining the skin and mucous membranes show this peculiar hypersensitiveness. The physician who expects to investigate many patients with hay fever and asthma must have in his possession suitable preparations of practically all substances that are known to cause these conditions. He must be willing to spend the time and have the patience to test and retest his cases, because frequently many and repeated tests are required before the cause or causes underlying a given instance of hay fever or asthma are successfully determined. It is for this reason that the exact etiologic diagnosis and treatment of allergic diseases is fast becoming a specialty in medicine.

Too much, however, must not be expected from the skin test. It has its definite limitations in diagnosis. There is an impression, far too common, that since this reactivity of the skin indicates a condition of hypersensitiveness failure to obtain a positive skin test rules out the existence of an allergic condition. This is a conception far from the truth and one that has led to much discredit of the skin test as a diagnostic procedure. If one bears in mind that only certain tissues are, as a

rule, reactive to allergic substances and only at certain times, and that unless the skin be so at the time the tests are made no reaction will take place, it will help to explain the failures so frequently observed in skin-testing. To make the skin test more valuable in diagnosis, reasonable repetition is desirable inasmuch as the skin reaction may disappear after an attack. Occasionally where the history and symptoms are very definite and the skin test, with substances known to be active, is negative the careful instillation of a dilute solution of the active sensitizing substance in the conjunctiva or its topical application to the nasal mucosa will produce swelling and redness of diagnostic significance. Not infrequently also is it necessary to invoke the therapeutic test, for it is now pretty generally recognized by many workers in this field that typical instances of hay fever and sensitization to other inhalants and to food proteins do occur in which the skin reactions are repeatedly negative. Treatment with a pollen appropriate to the season or the elimination of an epidermal inhalant or a food will in such patients very often give good results.

The controversy which is still active as regards the relative merits of the different methods of skin-testing is fruitless. The two methods supplement rather than replace one another. There can be little doubt that, for general clinical application, the cutaneous method has many advantages over the intracutaneous. It is much simpler and more expeditious for extensive use and, in the hands of the average worker who is not thoroughly familiar with the strength of his reagents, is less likely to produce constitutional reactions. On the other hand, because the intracutaneous test is more sensitive, its use will frequently give a positive result where the cutaneous test is negative, and because of this it serves as a useful procedure to determine the presence or absence of a reactive skin, which is so important a characteristic of the allergic constitution.

Equally controversial has been the question of the thoroughness with which a hay fever or asthma patient should be tested. Many workers are in accord that it is not necessary to test every patient with every allergen.<sup>7 10</sup> The number of tests to be applied must be determined largely by the history of the individual patient. In many of the large asthma clinics of this country the substances used for skin-testing are limited to a comparatively small number. By employing a well-selected number of food, pollen, animal epidermal and miscellaneous allergens known to give rise to sensitization, the sensitizing factor or factors underlying the majority of these patients will be discovered. The obscure cases require more exhaustive study. This plan we are following in the Stanford Clinic. Our routine tests include the more prevalent local spring and fall pollens, a pooled, active house-dust extract and the more common epidermal, food and miscellaneous allergens. Multiple sensitization is the rule in individuals with an allergic constitution. The positive skin reactions are frequently numerous both in the hay fever sufferer and in the hypersensitive asthmatic. In the latter the sensitizing agents



may belong to unrelated biologic substances. Unless the history of environmental or occupational exposure or other telltale circumstances in the patient's story point the way, it is often difficult to prove that certain of the positive skin reactions have any diagnostic or therapeutic significance. Whether or not any or all of the substances to which the allergic individual's skin responds are real or potential sources of trouble is still a puzzling problem. It is to be hoped that serologic studies on multiple sensitization now in progress may help to clarify our knowledge of this subject.

## II. RESULTS OF DESENSITIZATION THERAPY

In considering treatment reference will be made only to hay fever and asthma concerning which our knowledge is more precise. It is difficult to gain any worthwhile viewpoint of the value of specific treatment in these conditions by merely giving the percentage of patients relieved of symptoms. Of more importance is a consideration of the factors which modify the results of treatment in the individual case. Of these factors, the allergic constitution and the presence of nasal and bronchial infection probably affect the therapeutic result obtained more than any others.

The significance of the allergic constitution in its relation to treatment is well illustrated by the hay fever patient. One who has treated many of these patients will bear witness to the marked relief from symptoms which may be obtained by a series of injections with gradually increasing doses of the offending pollens. Although the sensitiveness of the patient to the causative pollen may have been reduced to the extent that he is symptom-free, yet one cannot regard him as cured. His state of hypersensitiveness has been merely lowered for the time being so that he can lead a normal life. Evidences of sensitization of the skin and mucous membranes still remain, however, for introduction of the specific pollen by the cutaneous or intracutaneous route will still produce an urticarial wheal. In other words, desensitization has not fundamentally altered the reactivity of the body cells; in fact, after exposure to abnormally large quantities of pollen in the air a desensitized patient may still develop hay fever symptoms. It may be argued that an equilibrium or balance has been brought about in the body of the individual with an inherited hypersensitiveness<sup>11</sup> and that a certain quantity of pollen may be inhaled without upsetting this balance, whereas an overdose will disturb this equilibrium and give rise to a recurrence.

It is true that for greater completeness of relief it is necessary to treat a hay fever patient for at least several seasons, and in many instances to administer some treatment every season. The common impression that a course of pollen injections carried out over one season will cure hay fever has no basis in experience. However, even though not permanent, desensitization of a hay fever patient gives marked seasonal relief and is decidedly worth while. Because of the comfort which such treatment gives them, hay fever sufferers are often among the most grateful of our patients.

490 Post Street.

## HELIOOTHERAPY IN PULMONARY TUBERCULOSIS—ITS POSSIBILITIES AND DANGERS\*

By CARL R. HOWSON, M. D.,  
Los Angeles

DISCUSSION by Ralph B. Scheier, M. D., San Francisco;  
Roland Davison, M. D., Tucson, Arizona.

AT the present time we are on the crest of a wave of enthusiasm concerning the use of light in the treatment of various diseases, particularly tuberculosis, and are being deluged with literature extolling the virtues of appliances for the production and application of the healing rays. Nature and old Sol are being improved upon at every turn, so that the uninitiated is at a loss to know just which to advocate, for he is assured on all sides that he must employ this or that lamp or be shamelessly neglectful of a heaven-sent opportunity to cure his patients of whatever may ail them. The public has been educated by the lay press to the wonderful possibilities of this type of therapeutics, and if the physician does not take the initiative he is likely to find his judgment called into question or his patient leaving him for the more up-to-date chiropractor or naturopath, who is availing himself of the latest "scientific" appliances unhampered by scientific considerations as to possible limitations and dangers. And in self-defense many have apparently decided that when in doubt as to the diagnosis or the treatment actinotherapy should be tried, and tried thoroughly, whether the case be one of acute dermatitis venenata or some obscure internal disorder. If it be tuberculosis, the first thought is for light treatment or sun baths; and I fear that the present tendency to overenthusiasm will be followed by a reaction which will result in discrediting a valuable therapeutic agent.

The idea that healing powers reside in sunlight is not new. From Hippocratic times to the present, tuberculous patients have been advised to expose their bodies to the sun's rays. In recent years Rollier has done much to popularize the treatment by the results obtained in his sanatorium in the Swiss Alps, particularly in non-pulmonary conditions.

### EFFECTS OF SUN BATHS

Sun baths increase metabolism, and exert a tonic effect which may be quite marked, producing a very definite euphoria. Rollier places great stress on the mental uplift many patients experience. Just how these effects are accomplished is still to be determined, for the action is a complex one. It seems probable that transformation of energy plays a part, that the vasomotor stimulation is of great value, and that possibly the skin is also stimulated to produce vitamins and antibodies. Following several weeks' heliotherapy the skin assumes a beautifully smooth, velvety appearance which is quite striking and characteristic. The fine muscular development of many tuberculous patients who are taking heliotherapy

\* Read before the Los Angeles County Medical Association, October 20, 1927.



but no exercise is even more so. It has been suggested that this latter is due to the continuous light massage of the skin by the moving air, though Rollier is of the opinion that it is rather due to the stimulation of the nerve endings in the skin, producing tonic impulses to the muscles.

#### VASOMOTOR STIMULATION OF AIR BATHS

Sir Henry Gauvain, in a most illuminating article in *The Lancet* recently (April, 1927) states that "Hill and Argyle-Campbell have shown conclusively that a constant rise in metabolism occurs after a course of sun treatments, but this rise is due to exposure of the nude skin to cold air, not to sunlight. It occurs either in shade or sun, and is, as might be expected, greater in winter than in summer. Alpine writers attribute this effect to sunlight. This is incorrect." He goes on to analyze the various factors involved, and concludes that perhaps the most important ones in the treatment are the changing temperature, the changing motion of the air, the varying intensity of the sun, and the varying humidity. The effects of these may be summed up as vasomotor stimulation, the changes serving to maintain a varying stimulation, thus avoiding vasomotor fatigue with subsequent depression.

Much has been done in an endeavor to determine wherein lay the particular healing element. It was a matter of common observation that exposure to the sun in hot weather was uncomfortable and depressing to most people, and what was more natural than to conclude that the invisible rays of the spectrum, which were known to be chemically active, were the essential ones from a therapeutic standpoint. Finsen was the first outstanding therapist to emphasize the ultra-violet rays. Study was soon concentrated on them, and for the past decade they have held the stage almost to the exclusion of the remainder of the spectrum.

#### PENETRABILITY OF RAYS

In view of the inclusive claims which have been made for their virtues, it is of interest to note a few points. The ultra-violet rays comprise only about 1/1,000,000 of the sunlight. Ultra-violet rays are very quickly absorbed by water vapor and dust in the air, so that only a small proportion reach the earth in dull weather or in smoky localities. Their power to penetrate tissue is very slight, probably no rays reaching below the skin. The body protects itself against them by the formation of pigment—tanning. (The tanning which results from exposure to the ultra-violet rays of the quartz lamp differs from that formed in response to the sun's rays. It is not an unusual thing to observe a patient lose the sun tan while using the quartz lamp.) Accurate knowledge is still lacking as to their action upon the tissues, and many clinical phenomena await an adequate explanation. Certain of these appear contradictory at first sight. For instance, individuals derive benefit from exposure to light in approximate proportion to the amount of pigment they develop—to the degree of tan. In other words, as they provide their own shade! It is seldom pos-

sible to give more than very brief exposures until tanning has begun. Heliotherapy has been in use for several years at various places in this country, particularly Perrysburg, N. Y., with an altitude of about eleven hundred feet and the great amount of dull weather which is characteristic of sections contiguous to the Great Lakes. On dull days their patients are exposed to light from lamps of various types, and the results obtained in this climate are quite equal to those obtained in the high Alps where the maximum of sunshine is to be had. (It is noteworthy that even on dull days air baths are kept up as long as the temperature will permit.) The question thus naturally arises, are the ultra-violet rays the only ones of importance, or even the most important, and to what extent are the representatives of the quartz lamp manufacturers justified in their claims for superiority over the rays provided by nature? How shall we reply to the statement made by one of them recently to a patient of mine who had been using a quartz lamp during the winter months, and announced her intention of discontinuing it and taking sun baths? Expressing his astonishment that I should countenance such a move, he said, "That is like leaving a banquet for a sandwich."

#### VARIETY AND VALUE OF RAYS

Much has been written but there is as yet very little scientific data as to how many of the different rays are of value and which are the most valuable. The ultra-violets are undoubtedly important, but it is equally certain that the other rays are not to be ignored. The best results appear to be obtained from the use of the entire solar spectrum, and the most satisfactory artificial lamp is that which produces a light most nearly approximating the sunlight.\* For this reason the carbon arc is probably to be preferred over all other lights which have been placed on the market to date, though even its spectrum contains a slight excess of ultra-violets. With the tungsten carbons, which are commonly used, this excess is quite marked. LoGrasso and his co-workers at Perrysburg have for some years been engaged on this problem, and feel that the excess of ultra-violets is undesirable, and they filter them out by the interposition between the (carbon arc) lamp and the patient of a thin sheet of mica.

#### AIR BATHS

A much neglected corollary to the sun bath is the air bath, which is simply the exposure of the skin to the air. This can be done irrespective of the absence of sunlight so long as the temperature is such that the patient does not chill. As noted above, the effect is one of vasomotor stimulation, and is very similar to that obtained in the sunlight, but the action and reaction are much milder. The air bath "plays a more important part in improving the vigor than has been recognized," and I believe that its value is probably equal to that of the sunlight. It is probable also that the reason the sun's rays give better results than

\* A possible exception may be made with respect to rickets and tetany, in the treatment of which the ultra-violet rays appear to be the essential ones.



artificial light is that the sun bath is given in the open while the others are usually given in a small room, where the tendency is for the air to stagnate. Egbert of El Paso has recently (*Southwest Medicine*, April, 1927) reported some interesting experiments which indicate that the action of the ultra-violet rays without air baths may be decidedly detrimental to the patient.

In addition to the effects already noted, exposure of *any part of the body* to the sun in pulmonary tuberculosis produces congestion at the focus of disease in very much the same manner as tuberculin, and herein lies a possibility of danger to which sufficient emphasis has not been given, for it is a very real danger, and has always to be kept in mind when considering the use of light. This reaction has been responsible for many bad results, and much unfavorable criticism. In his introduction to Rollier's "Heliotherapy" Saleeby pays his respects to "those who . . . begin by exposing the chests of phthisical patients to the midday sun for an hour or so, and then infer from the subsequent pyrexia, hemoptysis and autopsy that sunlight is useless in pulmonary tuberculosis."

#### CASE REPORTS

To illustrate this phase of the matter I shall quote briefly from two typical case records selected from a large number.

CASE 1—T. K., a young man of twenty-nine with a chronic peribronchial lesion of the left lung and early peribronchial involvement of the right, had been slowly losing ground, and finally quit work and went to bed under the care of his mother. She had in her youth had active pulmonary tuberculosis, and been given sun treatment with apparently excellent results. This experience, together with what she had read in the columns of a local paper devoted to advice on health matters, edited by a so-called naturopath, convinced her that the one thing additional her son needed was sun baths. Accordingly, one unusually bright spring day she exposed the front of his chest for fifteen minutes, and repeated it next day. He felt poorly after the first exposure, and following the second one developed acute pleurisy, accompanied by bronchopneumonia on the better side. This seemed to be the turning point with him, for it was followed by a dissemination of the tuberculous process in the right lung and a rapidly progressive condition which terminated in death.

CASE 2—G. H., age thirty-three, physician, was suffering from far advanced bilateral pulmonary lesions with extensive cavitation and involvement of the intestines and larynx. He was in an institution in a neighboring state, and had made some progress, but his condition was not considered satisfactory, so sun treatment was begun, the exposures rapidly reaching an hour. In three weeks he lost twenty-two pounds and developed a marked repugnance to food, with extreme nervousness and insomnia. His basal metabolic rate was found to be plus 40, and a diagnosis of hyperthyroidism made. He was sent here for x-ray treatment of the thyroid. On arriving, he continued his rest regimen without either sun baths or x-ray treatment, and in a few days his symptoms returned to normal. Improvement from that time on was all that could be desired.

Because of similar ill effects, many of the European clinicians consider sun treatment contraindicated in pulmonary tuberculosis. I am informed that this view is held by most of those in the vicinity of Lysin where Rollier's institution

is located. This I believe to be an extreme view, and the opinion of most of the careful workers in this country is that it may be of great value, provided its dangers are kept in mind.

#### TECHNIQUE

What, then, are the rules for the use of the sun's rays in the treatment of pulmonary tuberculosis? For, as Gauvain says, "Sun treatment is not mere exposure to the sun. The technique requires skill, care and gradual application."

Patients should first develop a tolerance to the air by carefully graduated air baths. While it is possible to get unfavorable reactions from these, they are much less likely to occur than from exposure to sunlight. They may be given for five minutes twice daily, increasing five minutes a day. The limitation to their final duration is the temperature of the air. They may be continued through the patient's waking hours.

After becoming habituated to the air for a period of an hour or more, he may be started on sun baths, and for these the skin should be directly exposed. If for reasons of privacy this is impossible, a thin white garment will permit the passage of a great portion of the rays. Ordinary window glass cuts out about 75 per cent of the ultra-violet rays of the sun. The head should always be kept covered and the eyes protected by dark glasses. Extreme care is necessary in graduating the dose, *i. e.*, in the duration of the treatment, and it is according to the skill with which the dose is graduated that the treatment will be a success, a failure, or worse than a failure. It should never be sufficient to cause sunburn. It should also be borne in mind at the outset that certain types of blondes are never able to take sun baths. They simply burn and peel, and manifest unfavorable reactions, no matter how often the treatment be tried or how carefully the dose be graduated. They may, however, be benefited by air baths.

#### GRADUATED EXPOSURE

Elaborate tables have been devised as guides, that of Rollier being in most general use, and they may be used if desired. A simple method is to expose the feet for five minutes morning and afternoon on the first day, to the knees for the same time the second day, including the thighs the third day, to the waist on the fourth day, with the addition of the arms on the fifth day. The chest should at all times be kept covered with a material sufficiently heavy to prevent penetration of the rays. On the sixth day the exposure of the day before is repeated, and the back of the legs to the knees exposed for five minutes, the following day the back of the thighs is included, the next day to the waist, and the next day the back of the arms, thus giving an exposure of the whole body except the chest for five minutes on the front and five on the back. The exposures may then be increased to seven minutes, then ten minutes, increasing thereafter five minutes a day until a total of one hour or more is reached. When definite evidence of tanning is seen, then, *and not until then*, the chest may be cautiously exposed, beginning with one minute and increas-



ing one minute daily until the time of exposure equals that of the rest of the body, the exposure time of which has not in the meantime been increased. A transient erythema, its duration measured in minutes, is usual. A reddening of the skin, lasting twelve hours or more, constitutes a burn, and should be avoided. If it does develop, the baths should be discontinued until it has subsided. At all times the patient must be under the supervision of his physician, who must be vigilant to detect any signs of unfavorable reaction.

#### UNFAVORABLE REACTIONS

These unfavorable symptoms are those of overstimulation, either constitutional or focal. Constitutional symptoms include increased temperature persisting longer than half an hour after the bath (there is always a transient increase in temperature), a feeling of fatigue or weakness, dizziness, nausea, headache, increased pulse rate, anorexia, or nervous irritability. Focal symptoms include increased expectoration or cough, pleurisy, blood spitting, or a feeling of tightness across the chest. *Any patient who feels worse after a bath than before has had too much sun.* In the event of any of the above symptoms manifesting themselves, the treatment should be omitted for a day or two, and then resumed with a shorter exposure. If the symptoms are at all severe, the treatment should be omitted until forty-eight hours after they have entirely subsided, and when resumed the exposure should be reduced, usually to as low as one-quarter of the dose causing the reaction. Persistent reactions under the above plan call for a discontinuance of the sun baths. If the patient's weight decreases or his general condition becomes worse, they should be discontinued. It may be possible to continue the air baths alone with beneficial results.

The use of artificial light is reserved for the days on which it is not possible to use the sun, and it is necessary to graduate the dose carefully until the patient's tolerance is established. Air baths should be given on such days if the weather will permit.

Following the bath a cool shower should be taken, followed by brisk drying and then a rest period.

In most cases the baths may be taken twice a day. The midday sun of summer is undesirable, especially in the semi-tropical sections of the southwestern states, and the time of exposure should be before 10 a. m. and after 2 p. m.; indeed, in the very hot weather the hours between 7 and 9 a. m. and 3 and 5 p. m. should be chosen. Care should be taken to shorten the exposure on unusually hot days.

Much of the confusion in the use of sun treatment has arisen from the fact that tables such as the above are followed in all cases. No greater mistake can be made. This is merely an outline of the maximum exposure which may be given. It is to be altered to suit the individual patient. Few will be able to follow it without interruption, and in many cases the maximum dose is never

reached. The most important point in sun treatment is to individualize every patient. It should be noted that blondes as a class are more sensitive than brunettes, and their dose must usually be increased more slowly.

As stated above, in using artificial light it is necessary to graduate the dose and to develop the patient's tolerance just as with the sun. This is true of all forms of light and all types of lamps. There is a very general idea, assiduously fostered by some lamp manufacturers, that the ultra-violet rays are innocuous, and can be used practically *ad libitum*. This is by no means the case. It is possible to get severe burns and severe constitutional reactions with these artificial rays. To illustrate:

Mrs. K., aged 31, developed a cough in May, and soon after began to feel tired and to lose appetite and weight. She went to a diagnostician, who told her she was suffering from pulmonary congestion, but had not tuberculosis. He gave her a treatment with the Alpine lamp. That evening she developed acute pleurisy with a temperature of 102 degrees.

#### CONTRAINDICATIONS TO HELIOTHERAPY

Sun treatment is contraindicated in acute tuberculosis of all types, in the acute stages of a chronic tuberculosis, in chronic types with much fever, in those who have recently had hemorrhages, those who burn but do not tan, and the aged and those whose vitality is so depressed that they are unable to react.

Sun treatment should be tried in the chronic stage of all types of extrapulmonary tuberculosis, with the exception of advanced bilateral renal tuberculosis. Extrapulmonary lesions which are complicated by pulmonary involvement require the same care in their treatment as those cases which are purely pulmonary, and no patient with extrapulmonary tuberculosis should be subjected to sun treatment without a thorough examination of the lungs. Neglect of this precaution has been responsible for some very serious results.

In conclusion, heliotherapy should not be used to the exclusion of other valuable and well-tried methods of therapy. It is in no sense a substitute for them. Rest is just as essential, in fact more so, when heliotherapy is being used as when it is not. When the use of tuberculin is being considered, the physician will have to decide whether to start with tuberculin or heliotherapy. Both agencies produce congestion at the site of the lesion, and it is desirable to initiate the use of only one such instrumentality at a time. The patient's tolerance and reactions are to be carefully studied, and when the physician feels that he is in a position to differentiate between the effects of the remedy he is using and the additional one he is preparing to use, then this second remedy may be brought into play and the patient carried along with both. Depending upon the type of case and the judgment of the physician, preference will at times be given to heliotherapy and at other times to tuberculin. My personal feeling is that in tuberculosis of the eye and inoperable tuberculosis of the genito-urinary tract



it is a mistake to postpone the use of tuberculin, for in these cases it is the one specific remedy at our disposal, and valuable time may be lost awaiting results from other measures. Air baths may, however, be used in conjunction with tuberculin from the start.

#### SUMMARY

1. Properly used, sun and air baths are of definite benefit to many tuberculous patients.
2. They may be contraindicated because of (a) the type or stage of the disease or (b) inability of the patient to react owing to constitutional or acquired disabilities.
3. Their use requires a knowledge of dangers, a proper graduation of the dosage, and close observation for unfavorable reactions.
4. Neglect of these precautions may lead to serious and even fatal consequences.
5. Artificial sources of light may be used on dull days when the sun is not available.
6. Our present knowledge, while very incomplete, justifies the following statements: (a) It is desirable that the rays from these lamps approximate in composition those of the sun, and (b) The claims for the great superiority and freedom from danger of the ultra-violet light rays to the exclusion of the balance of the solar spectrum are not justified.

307 West Eighth Street.

#### DISCUSSION

RALPH B. SCHEIER, M. D. (490 Post Street, San Francisco)—The reports of the remarkable results obtained by Rollier in the treatment of tuberculous bone lesions have been followed by an indiscriminate and unscientific application of heliotherapy in all forms of tuberculosis. The improper use of this therapeutic measure will aggravate many cases of pulmonary tuberculosis and may even cause death.

I have had the opportunity of studying the results of the sun treatment in several hundred cases of pulmonary tuberculosis, while under careful observation in a sanatorium. The conclusions reached in reference to this method of treatment are quite in accordance with the views expressed by Doctor Howson and I trust that Doctor Howson's valuable contribution will serve as a note of warning in emphasizing the fact that great harm may be done unless considerable care is exercised in the selection of cases suitable for this form of treatment.

Recently, I observed two patients suffering from pulmonary tuberculosis who, contrary to advice, had persisted in exposing their chests for several hours daily to the sun's rays with a fatal result in one case and a marked relapse in the other. Both patients had limited lesions involving only the right apex. Previous to the sun exposure they had been making excellent progress. The cough had disappeared—the temperature had become normal and the expectoration had been reduced to less than 2 cc. daily. Both patients had been occupying a sleeping porch in common. Having read of wonderful results following the use of sun baths, they, contrary to advice given, persisted in exposing themselves for several hours daily. One of them had a sudden hemoptysis which was followed by a disseminated tuberculous process affecting both lungs and death occurred within a few months. The second patient soon exhibited signs of marked activity. Auscultation over the previously quiescent area revealed many moist râles and a considerable extension of the process. The cough returned and the expectoration increased. The temperature, which had been normal for a period of four months, showed a daily rise.

After a careful analysis of many cases of a like nature, I have discontinued the use of heliotherapy

in the treatment of most patients suffering from pulmonary tuberculosis and use it mainly in extra-pulmonary tuberculosis and in selected pulmonary cases of the fibrous type.

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ROLAND DAVISON, M. D. (The Desert Sanatorium of Southern Arizona, Tucson)—The truth of Doctor Howson's timely warning can only be fully appreciated by those of us who are constantly dealing with light as a therapeutic agent.

My experience with the various artificial sources of light is meagre. The advertisements of the manufacturers show spectra of these lamps, but they do not inform the user how much energy is produced in the ultra-violet region. Furthermore, carbon arc and mercury vapor lamps lose their ultra-violet efficiency with use. Atmospheric conditions in many places in our country unquestionably prevent radiation of short wave lengths from reaching the earth's surface. In the southwest, however, the amount of such energy reaching the earth's surface is much greater in amount than is produced by artificial sources of radiation.

Reference to increased metabolism from sun bathing requires qualification, for while there is evidence of increased breakdown of body protein, increase in the basal metabolic rate does not always occur.

Individuals cannot be said to derive benefit in proportion to the amount of tan they develop, for many blondes who never produce tan can be benefited greatly by sun bathing. Treatment of such persons is not contraindicated but the dosage of ultra-violet given to such persons should be carefully measured and increases made very slowly. Where the sun is used as a source of energy, a knowledge of the exact amount of ultra-violet energy which such radiation contains, is essential if the best results are to be obtained.

The benefits which are derived from the sun bathing are probably due to other factors than the ultra-violet contents of the light to which the patient is exposed. We are now making experiments to evaluate influences such as air movement, temperature of the air, and humidity.

At the Desert Sanatorium we no longer admit patients with the open form of pulmonary tuberculosis, for we found only a very small number of patients with this type of tuberculosis benefited by treatment with solar radiation at this particular place, though the most careful supervision was exercised, and care taken to prevent excessive radiation.

Too much attention has probably been focused on the depth to which short-wave-lengthed radiations pass. The action of ultra-violet radiation is largely photochemical in character and while a certain degree of penetrability is essential, it is unnecessary to have the short wave lengths penetrate below the superficial layers of the skin.

Aside from the local skin changes, the effect on the body is the product of the amount of surface exposed, the intensity of the radiation, and the time of exposure.

We give full body radiations and I can see no valid reason for covering the chest when the mode of action is considered. Our clinical experience does not justify covering the chest of patients with pulmonary disease.

Unquestionably a greater effect is obtained from fractional dosage than is obtained from a single long exposure, although the reason for this difference has not definitely been shown. Mid-afternoon exposures at Tucson cannot be given because of the great heat at that time. Additional reasons for giving all of our exposures during the morning include the fact that during the first hour following the radiation there is a shift, according to competent observers, in the hydrogen ion concentration of the body to the acid side which is followed by a shift to the alkaline side, the alkaline reaction persisting for a period of more



than twenty-four hours. We believe this shift in H is desirable.

Determination of the ultra-violet contents of sunlight at a wave length of 3200 Angströms as measured by the Pettit radiometer at the Desert Sanatorium shows a negligible amount of short-wave-lengthed radiations in the very early morning and in the late afternoon. It is probable also that a greater effect is obtained from similar dosage of ultra-violet at higher temperatures than is obtained at lower temperatures, a fact of more than minor importance.

All of these factors enter into the question of benefit or harm from sun bathing. The one important point to be borne in mind in giving heliotherapy is accuracy of dosage carefully controlled at all times, with daily supervision to avoid exceeding the individual patient's tolerance for radiation.

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DOCTOR HOWSON (closing)—The amount of tan developed is, of course, only a rough method of estimating the benefit derived or to be derived from the sunlight. I am of the opinion that in the case of those who do not tan benefit accrues chiefly from exposure to the air.

It is a matter of observation that when the chest is exposed to the sun's rays unfavorable reactions are more likely to occur than when other portions of the body of similar skin area are so exposed. For this reason a tolerance can more rapidly be developed at the outset if the chest be kept covered until tanning has begun. After the initial "seasoning" it is exposed with the rest of the body.

Much remains to be worked out regarding the factors enumerated by Doctor Davison. I am hopeful that the work now being undertaken at the Desert Sanatorium may add substantially to our meagre store of knowledge.

## ABNORMAL KINKS AND BANDS IN THE ABDOMEN\*

### CASE REPORTS

By ALANSON WEEKS, M. D.

AND

G. D. DELPRAT, M. D.  
San Francisco

DISCUSSION by John Homer Woolsey, M. D., San Francisco; John Francis Cowan, M. D., San Francisco; Foster K. Collins, M. D., Los Angeles.

THE relationship of anomalous abdominal bands and membranes to certain very definite subjective symptoms has been so ably discussed by others, and particularly by Dr. Alfred S. Taylor of New York,<sup>1</sup> that further exemplification would seem unnecessary. In our recent experiences, however, a number of cases have appeared which have run the gamut of various medical, and even surgical, procedures without relief, so that it would seem in order to review this condition briefly and submit a few typical cases.

### CHRONIC PAINS IN THE ABDOMEN

During service as consultant for the Veterans' Bureau since 1919 the attention of one of us has been drawn to the many men and women patients who complained of chronic, uncertain pains in the abdomen. A number of these patients had been operated on previously for "chronic appendicitis." It was noticed that their operations were practically all done through very small McBurney incisions. Our own opinion is that the length of the incision should more often be a measure of the

ability of the surgeon. We feel that a patient is not jeopardized more by a larger incision, and that if a patient must undergo an operation, then at least an incision large enough to allow the exploration to which he is entitled should be made.

The persistence of pain in these chronic invalids led us to explore the abdomens through long, right rectus incisions. We frequently encountered adhesions of the omentum to the ascending colon, which pressed into and constricted the latter to a marked extent. We also found adhesions in the region of the ileocecal valve which caused marked angulation or even partial blocking of the terminal ileum. From our small series we have reason to believe that one should always be careful to make an incision that can be enlarged sufficiently to permit exploration of the whole abdomen, should the pathologic condition diagnosed prove insufficient to account for the symptoms presented.

The following six cases may be taken as typical instances where marked permanent relief of the discomfort and disability from which the patients were suffering has been caused by the reduction of just such adhesions. Pain in the abdomen is the most frequent single symptom of which patients having these unusual bands or adhesions complain, but it is true that symptoms may occur due to changes in remote tissues or organs. The casual relationship of such symptoms may not be immediately evident, but it has been shown by Dr. Rea Smith of Los Angeles<sup>2</sup> and Dr. B. W. Williams of London<sup>3</sup> that the failure of some part of the ileocecal intestine to empty properly allows a perversion of the intestinal flora, and this in turn constitutes an intestinal focus of infection. Just as infected teeth or tonsils can be responsible factors in polyarthritic changes, so it is claimed, can this pooling in the intestine produce similar results. If the arthritis is cured by the treatment of the infected teeth and tonsils, it would seem reasonable that it should be similarly alleviated by correction of this retardation of fecal movement in the colon.

Two years ago Doctor Smith<sup>4</sup> wrote a paper entitled "Brief Outline of the Cause and Treatment of Polyarthritis," in which he stated that the removal of the right colon for polyarthritis was rather a formidable procedure in debilitated patients. This drove him to search for a less severe treatment, and he called our attention to the constricting band just above the head of the cecum which interfered with the proper emptying of that organ. His results would indicate that such bands and kinks are the cause of chronic invalidism.

### CASE REPORTS

CASE 1—Nurse. Reported for treatment in January, 1922. She had suffered from vague abdominal distress for years, and from pains in the right upper quadrant, which suggested chronic gall-bladder disease. Her appendix had been removed in 1914. X-ray examinations were reported negative, for few roentgenologists at that time observed or reported poolings in the bowel.

A long, right rectus incision was made and the upper abdomen thoroughly explored. The gall bladder was without adhesions and apparently normal. The incision was extended downward and the pelvic or-

\* Read before the Surgical Section of the San Francisco County Medical Society, October 18, 1927.



gaus found to be normal. There was no band across the head of the cecum, but there were angulating adhesions in the region of the ileocecal valve. This was the only abnormality found after careful search. The adhesions were freed and the raw surfaces were covered.

The fact that this patient, after years of suffering, was able to report three years after her operation that she was in perfect health, justifies our belief that the kinking at the end of the ileum was the cause of her trouble.

CASE 2—Early in 1924, a husky rancher, with a history of having been operated upon six years before for a right inguinal hernia. Since his operation he had a nagging pain in his right lower abdomen which at times was so severe that a diagnosis of chronic appendicitis had been made. When he was first seen his story and symptoms did not lead us to believe that he was suffering from appendiceal disease. X-ray examination helped markedly in the diagnosis of this patient. Repeated opaque enemata showed a funnel-like projection of the cecum evidently attached at its apex to the region of the right internal inguinal ring. Such a finding fitted his history perfectly.

A long, right rectus incision was made. The attachment of the cecum to the internal ring was readily found and freed. The probability is that during his hernioplasty a stitch had been passed through the cecum when the peritoneum was being closed. The appendix was found below, passing well down into the pelvis, and although showing no evidences of an acute inflammation, was removed.

Two years after his operation he wrote us: "I have not felt better in years; put on thirty pounds last winter. Can eat most anything without distress."

CASE 3—A slight, thin woman, age forty years, came in early in 1925, complaining of abdominal pain, nausea, vomiting, constipation and lack of appetite. Her history was as follows: In July, 1922, three months after the birth of a child by cesarean section, the patient began to notice vague, indefinite, abdominal pain on the left side, which came on without evident reason and was first noticed when lying in bed. Since that time the pain had been periodic in character, with intervals of several weeks' duration, of complete freedom from discomfort. During an attack the pain was quite constant in character and was followed by a feeling of soreness in the abdomen. She also had momentary knife-like pains which radiated from the right side to the lower abdomen. These pains were extremely severe and forced her to cry out. Following these attacks she frequently vomited, was very much upset and was compelled to go to bed. When lying on her left side she had a sensation as though something were pulling in the anterior abdominal wall. None of her symptoms pointed toward the upper abdomen. There was no evidence of chest pathology. She was normal in every other way. Nothing in her history suggested that she had ever had an attack of acute appendicitis. She had the anxious expression and the muddy skin of a chronic invalid of this type.

She had been refused operation by one of our best surgeons, who had told her physician that she was a hypochondriac. After listening to her story, remembering her cesarean operation, and being much interested in kinks and bands as a cause of her type of illness, we suggested operative treatment which she very readily accepted.

Through a long, right rectus incision a string adhesion, tense as a bow string and as large as a piece of wrapping cord, was found attached to the fascia in the region of her umbilicus—the old cesarian wound—and this spread out over the upper surface of the uterus, pulling that organ upward. This in itself appealed to us as the cause of her curious pain. A large, open appendix, without evidence of acute inflammation, was also removed. No other adhesions were found in the abdomen. The gall bladder was inspected and appeared somewhat grayer than normal, but free from stones.

A few months following this operation the patient had gained eleven pounds and felt better than she

had for years. We have seen her recently, and she is now a healthy, rosy-cheeked, plump and happy woman.

CASE 4—Early in 1924 a middle-aged woman reported for examination. She gave a history of having had her appendix removed some years before, with a story of indigestion, periodic vomiting and distress in the abdomen. This suggested ulcer, but careful x-ray examination showed nothing beyond a definite six and a half hour residue in the stomach. Because of this residue and her very definite record of distress, her abdomen was opened through a long, right rectus incision. Examination of the stomach and duodenum showed no evidence of ulcer or gall-bladder disease. The duodenum was unusually dilated as was the pyloric end of the stomach. A number of adhesions of the great omentum, which dragged the pylorus down to the region of the old appendectomy wound, were freed. In lifting up the transverse colon the jejunum was found collapsed beyond the ligament of Treitz, and in this region there were marked adhesions between the jejunum and the mesentery of the transverse colon where the jejunum passed over the ligament. This adhesion caused a definite, sharp angulation of the jejunum. The fingers could easily be passed above the ligament of Treitz, showing freedom from constriction there. The adhesions were freed and the bowel straightened out. The adhesions of the omentum and bands angulating the jejunum presented the only deviation from the normal in the abdomen.

Late in 1926 we had a letter from this patient in which she states: "My present condition is very satisfactory, and I have felt stronger and better in every way than I have for the last five years."

CASE 5—Subsequent to the publication of the article by Doctor Smith<sup>4</sup> a patient with a very advanced polyarthritis came under our care. An effort was made to have our x-ray department demonstrate, if possible, poolings in the large bowel, but the large bowel was reported as normal from the x-ray standpoint. She readily accepted our advice of operative treatment in the hope of some relief.

The long, right rectus incision was made. A band of adhesions about two inches wide, which tapered to a cord-like structure and which became attached to the right parietal peritoneum behind the middle portion of the ascending colon stretched from the right attachment of the great omentum at the hepatic flexure of the colon. This band constricted the ascending colon and pulled it medially, and the section of this adhesion allowed the bowel to roll into a normal position.

The head of the cecum was freely movable and much distended below this point. From the left attachment of the great omentum another band, much narrower, reached down the left parietal peritoneum, and also definitely appeared to interfere with the lumen of the descending colon. This was also divided. A third band of adhesions, extending between the second portion of the duodenum and the lateral side of the gall bladder from the ampulla to about two inches from the fundus, was found and freed. The gall bladder was definitely thicker than normal and was removed, as was the appendix.

This case is mentioned because there was absolutely no doubt at the operation of the mechanical interference of the two bands mentioned. Four months following the operation there was no improvement of this patient's arthritis, but in fairness to the technique advised by Doctor Smith, it must be stated that his follow-up care, which is most important, had not been done; but certainly the mechanical principles which he described as being involved were beautifully shown. This patient gave no history of any former abdominal operation.

CASE 6—The following unusual record gives us another type: The patient, a man, fifty-five years old, was brought to us last July, following a large hemorrhage from the stomach. Because of an attack of acute appendicitis he had had his appendix removed without drainage many years before. Since he gave no history of ulcer or other upper abdominal distress, a diagnosis of a ruptured vein was made. He promptly recovered from his loss of blood, but through the



alertness of his attending internist, x-ray pictures were made which demonstrated a shadow just within the pylorus on the lesser curvature. There were also signs of irritation on the greater curvature, immediately opposite this point. The patient was given instructions regarding his food and drink, responding kindly and being able to be up and about to attend to his usual work with practically no distress.

In the course of another two months a second series of x-ray plates showed the same shadow near the pylorus very definitely. The patient continued in excellent health until January of this year when a third set of x-ray plates were made, and the shadow was still present. After a consultation with the roentgenologist and the patient's internist it was decided that, because of the great probability that this shadow was due to a growth, operative interference was indicated. It must be remembered that there had been no change in the appearance of the shadow as shown by the repeated x-ray pictures.

The patient was operated upon in the middle of January of this year, and a careful search was made for a growth or ulcer. The first portion of the duodenum was short and was hard to deliver. In examining the pylorus, a firm cord the size of a piece of wrapping twine was found attached to the lower, anterior pyloric ring. This reached across the duodenum and was attached to the liver near the ampulla of the gall bladder. This band was firm and inelastic, and definitely twisted the pylorus toward the right to a position under the liver. The band was freed with a few other small adhesions in the same region, and the search for a possible ulcer at or near the pylorus was continued. In passing the fingers behind the stomach so that the pyloric region could be palpated back and front, an abnormally thickened area was felt. There was no external evidence of ulcer. Because of the very definite findings in the x-ray plates and the uncertainty of palpation signs, a linear incision was made in the pyloric end of the stomach, through which was definitely demonstrated that there was no ulcer anywhere in this region, and that the thickened tissue at the pylorus was an abnormally large pyloric muscle. Inasmuch as the x-ray plates had not at any time demonstrated a residue or evidence of pyloric obstruction, the wound in the stomach was closed. No other abnormalities were found. The gall bladder was evidently normal; no stones could be felt; and the liver edge, considering the history of the large hemorrhage, was remarkably sharp-edged and free from macroscopical evidence of cirrhosis.

The patient made an uninterrupted convalescence from the operation, but it is too soon to assert that a complete recovery was effected.

There was no doubt in the minds of any who saw the condition existing in this patient that this strong, tense adhesion was the cause of the distortion of the pylorus, as shown by the x-ray.

#### CONCLUSIONS

These six cases were chosen out of a series, as illustrating the type of symptoms caused by bands and adhesions in the abdominal cavity, and how the alleviation of these symptoms could be brought about when the exciting cause was removed.

It is our practice to search for anomalous adhesions in all laparotomy patients where exploration can be done without jeopardy, and the frequency with which these anomalies present themselves has been a source of surprise.

Many excellent papers have been written on the subject. These have presented the finer details, which it has not been considered necessary to repeat here. We feel confident that these pathologic conditions are worthy of our continued attention; for errors in diagnosis are frequently made and real abnormalities overlooked at operation. It should not be forgotten that chronic ap-

pendicitis not infrequently has been diagnosed, and operation performed, but the causative factors overlooked.

384 Post Street.

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#### DISCUSSION

JOHN HOMER WOOLSEY, M.D. (490 Post Street, San Francisco)—The authors are to be commended upon bringing to our attention a frequently overlooked and yet a very real form of intra-abdominal pathology, and upon their presentation of the subject in such a convincing manner—case histories. These abnormal kinks and bands are detected in 99 per cent of instances only by visual methods. Palpation will not demonstrate them. Therefore, as recommended in this paper, an incision sufficient to allow visual exploration is of paramount importance. In addition, if one views the right side of the operated abdomen from the left of the patient, with the anterior abdominal wall retracted upward and slightly outward, the ileocecal region, right colon, hepatic flexure of the colon, gall bladder, duodenum, and omentum can be seen lying in their accustomed position, and, if present, a view of the abnormal bands not otherwise demonstrable. Therefore I would urge the operative surgeon in right-sided chronic abdominal complaints to work from the left side of the patient or, at least, walk around and view the right abdomen undisturbed except by the upward and slightly outward retraction of the right anterior abdominal wall.

My personal experience at a charity clinic has demonstrated that cases of so-called chronic appendicitis treated by appendectomy alone (and they are the result of treatment by many surgeons) are at least 75 per cent failures. Some of these patients were later demonstrated to have pericolic kinks and bands.

In Case 5, the authors say: "A third band of adhesions, extending between the second portion of the duodenum and the lateral side of the gall bladder from the ampulla to about two inches from the fundus was found and freed." To be sure, one may find adhesions thus located, but most often these are mistaken for inflammatory tissue when, in reality, they are congenital variations of normal peritoneal folds—made by an extension to the right of the lesser omentum so as to involve a portion of the gall bladder. These so-called hepatocolic and cystocolic membranes, described first by Huschka in 1845, are distinguished by their containing fat, in contrast to the plain bands of peritoneal and fibrous tissue, due to inflammatory reaction. Knowledge of such abnormalities is exceedingly important, or unnecessary surgery results.

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JOHN FRANCIS COWAN, M.D. (490 Post Street, San Francisco)—Doctors Weeks and Delprat have called our attention to the relationship of chronic abdominal pain to anomalous abdominal bands and membranes.

Chronic abdominal pain, particularly if referred to the right lower quadrant of the abdomen, is considered appendiceal in origin. For this reason the appendix has been removed in many patients, without desired relief.

Most internists have seen these patients return, complaining that appendectomy has not relieved their symptoms. Reports in the literature show that 40 per cent of patients who have had appendectomy alone, for chronic appendicitis, have not been cured.

In 1922 I read a paper before the Washington State Medical Association, in which I reported one hundred cases of appendectomy for chronic appendicitis without relief of pain or symptoms referable to disturbance in peristalsis in the gastro-intestinal tract.

A careful study of these showed a variety of conditions that had been overlooked either because of lack of thoroughness in study of the cases, or because of



the inability of the operator to find, or his failure to look for, conditions other than those in the region of the appendix.

All but two of these one hundred patients had small McBurney incisions.

Chronic appendicitis manifests itself by pain due to adhesions or symptoms referable to disturbance of peristalsis. When adhesions are present without disturbance in peristalsis, pain alone is often the only symptom and this is increased by any movement of the abdominal wall or abdominal viscera, which causes traction on the adhesions.

Adhesions with disturbance in peristalsis give rise to colics referable to epigastric or umbilical regions, nausea, vomiting, constipation, and as these symptoms are merely the manifestations of disturbance in peristalsis, they are not pathognomonic of appendiceal disease, but occur in many conditions of the gastro-intestinal tract in which peristalsis is disturbed.

For that reason, while we may make a diagnosis of chronic appendicitis by ruling out all other possibilities, we should never act upon this, but do as Doctors Weeks and Delprat suggest, "make an ample right rectus incision, one large enough to allow exploration of the entire abdominal viscera."

In so doing, one will find many abnormalities, due to adhesions which one would overlook in the smaller McBurney incision.

I have seen two cases of partial obstruction at the duodeno-jejunal angle, the result of scar tissue, the legacy of an old mesenteric lymphadenitis, and I have seen abnormal kinks in the region of the ileocecal valve, due to similar cause in which a mass of calcified lymph nodes was present. Adhesions of the omentum to the ascending colon are fairly common.

I have also seen several cases in which a cysticoduodeno-colic ligament was present. This of course is of congenital origin and is a part of the lesser omentum. These congenital ligaments produce no symptoms until they are thickened and shortened from inflammatory processes, extending from neighboring viscera, and when one of these is found a careful examination of the gall bladder or duodenum should be made for cholecystitis or duodenal ulcer.

Therefore let us be sure that our incision is adequate, and that we do not stop our search by the finding of a few adhesions, but that all organs be inspected, palpated, and any pathology that is present be corrected.



FOSTER K. COLLINS, M. D. (412 West Sixth Street, Los Angeles)—Surgical literature indicates that surgeons throughout the world are giving this subject considerable thought and many agree that abnormal bands and constrictures about the intestinal tract are often the cause and not the result of pathology in the appendix, gall bladder, and other organs.

This is especially true if the constricting bands involve the ascending colon, since absorption is more rapid in this portion of the large intestine, and a blocking by constricting bands and malpositions leads to stasis and putrefaction, with subsequent changes in the appendix, gall bladder, or other organs.

The contention of the writers that, when doing intra-abdominal work in chronic cases, ample incision be made to enable a thorough examination of all the organs for bands and abnormalities, is sound.

The speedy removal of a "chronic appendix" through a small incision has reflected upon the ability of too many surgeons, since symptoms present before the operation have continued, the cause not having been found and removed.

The greater portion of the bands are, perhaps, acquired; many, however, are congenital, through faulty rotation and descent. The congenital bands usually do not give marked symptoms until after the third decade, for the reason that the intestine in earlier life retains its tone and compensates for the obstructing bands. Later the intestinal walls lose their tone through long abuse and become thin, pouch, and per-

mit more and more absorption of the products of putrefaction.

In my experience in these chronic cases that have had no previous operation, bands causing constrictures or kinking, to some extent, are seldom absent. The majority are found about the right abdomen involving the cecum, ascending colon, first portion of the transverse colon, gall bladder, or duodenum. However, a fairly frequent band is found kinking the descending colon at the sigmoid junction. Others, not so easily demonstrated or corrected, are infrequently found holding the splenic flexure in a kink, causing stasis and consequent ptosis of the transverse colon.

Bands acquired from a former contamination will be found largely in the lower abdomen, while those that are congenital will be found in the right and upper abdomen usually.

After freeing bands it is proverbial with surgeons that they are prone to return. The best known preventive of their return is an operative method that requires a minimum of handling and leaves as little raw surface as possible. Broad surfaces should be covered with peritoneum. For isolated bands it is my experience that if clamped near their attachments and ligated, there will be a smaller raw surface remaining than if stripped off, leaving a denuded surface; for instance, a band stripped from a gall-bladder surface leaves a raw portion that can hardly be covered, while if this band is clamped, cut and tied, the puckered raw portion will die from pressure necrosis and drop off leaving a smooth surface free from adhesions. This method is quick, free from bleeding and quite satisfactory.

The type of surgery advocated in the paper frequently gives brilliant early results and usually satisfactory final results. In such operative procedures there is seldom a fatality unless undertaken in late neglected cases.

## THE LURE OF MEDICAL HISTORY

GUY DE CHAULIAC

Chirurgien et Maître en Médecine

By WILLIAM DOCK, M. D.

San Francisco

GUY DE CHAULIAC, like ourselves, lived at the close of an amazing era. The thirteenth century had opened with the Fourth Crusade, when the ardent defense of the cross was deflected to the capture of Constantinople, and the robbery by Venice of the wealth of the eastern Christians. From the contact with the East a new leaven spread into Europe, radical improvements in agriculture permitted expansion of trade and population, increased wealth allowed the building of great cathedrals and the founding of universities throughout western and southern Europe. Graphic art was liberated by Giotto, literature by Dante, and speculative thought by Roger Bacon. The consolidation of Asia under the descendants of Jenghiz Khan opened a new world to travelers and permitted a remarkable growth of geographic knowledge. Traveling by caravan across Asia, Friar John and later William de Rubruquis made trips to central Mongolia and heard of the ocean east of China; the Polos, father, brother and son Marco, in two trips of thirty-three years' total duration explored Asia from the Gobi Desert south to Sumatra, and from Syria east to the Yellow Sea. Friar Odoric traveled for fourteen years through India, Malaysia, Siam, and China, while Marignolli lived in Peking as papal legate, and visited Ceylon and Hindustan. These latter



lived in Guy's day, and he probably saw them at the papal court.

#### BIOGRAPHICAL SKETCH

Guy de Chauliac, or more correctly, Guigo de Chaulhac, like most great physicians, was a country boy. He was born about 1300 in the hamlet of Chaulhac, now in the department of Lozère in southern France. This rough hill country lies on the frontier of Auvergne, near the Rhône but across the water-shed, so that its streams run to the Garonne and the Atlantic. Guy's family were farmers, and legend has it that as a youth he treated a dame of good family and cured her broken leg in three days. Her grateful family started his education. He was taught by the Church, became a clerk, and studied medicine perhaps for a short time at Toulouse, but chiefly at Montpellier. Montpellier, because of its relation to Spain and the Arabs, was the leading school for Eastern learning. Surgery was not taught in the university, but he probably studied with one of the free surgeons of the city after receiving his degree of Master in medicine. He then studied at Bologna, anatomy under Bertrucius, and perhaps medicine under Albertus Zancari, and surgery under Peregrino. Bologna was the most famous medical center in Europe, but by this time had passed its prime and thirty years later was practically deserted. He studied at Paris, perhaps only for a short time, and here too he arrived after the death of the two great surgeons, Lanfranc and de Mondeville. Pierre de l'Argentière was the leading surgeon of Paris at this time. Guy practiced in Lyons and finally after 1340 in Avignon. Perhaps he had been physician to and performed the operation of trepanation on his compatriot and friend who became Pope Clement VI, at any rate he was surgeon to this Pope and to Innocent VI and Urban V. This was during the period of the Babylonish captivity, when the papacy was greatly weakened and transplanted to Avignon for the years 1306-1376. Guy was first canon of Rheims and later prévôt of St. Just, in Lyons, offices which were given him as papal physician. Guy died about 1368.

Although we think of Guy as a Frenchman, France did not exist in his day. He was a Provençal who spoke the langue d'oc, and his native town during part of his life was included in the kingdom of Navarre. Burgundy was separate from France, and northern France was held by the English, who were in the midst of the Hundred Years' War.

#### SURGERY OF THE PERIOD

At this time surgery was in the fine state of ripeness which precedes decay, and while it was slipping back from some of the great gains of the previous century, it was in the best sense a learned profession. The hospitals of the thirteenth century were unequaled until the late nineteenth, and excelled in comfort and cleanliness some American hospitals of this day. Medicine and surgery, though practiced separately, were allied arts and most of the surgeons had medical training. Medicine, however, due to its adherence to the hair-

splitting philosophizing of the era and to the lack of potent drugs, was far inferior to surgery, and continued so until the time of Harvey and Sydenham. Perhaps one reason physicians have been so interested in de Chauliac is his consideration for medicine and the medical practitioners. Petrarch, who admired Guy, has left bitter verses on the physicians of this period. Anatomic dissections, which were fairly numerous at Bologna in the thirteenth century, were abandoned in the fourteenth. In a fourteenth century manuscript of Guy's book is the earliest portrait of an anatomy lesson with a cadaver. The status of surgical knowledge and its relation to that of previous centuries is clearly brought out by an examination of the work on which is based Guy's fame as the most distinguished surgeon of the Middle Ages.

#### THE GREAT SURGERY

This work, known as the "Great Surgery," bore the inscription, "In the name of God, here begins the inventory or compendium of the surgical part of medicine, compiled and completed in the year of Our Lord 1363, by Guy de Chauliac, surgeon, master in medicine, in the most illustrious school of Montpellier." There are thirty-four manuscripts and seventy printed editions of this work, which was from 1363 to 1575 the chief authoritative work on surgery, translated into every European tongue from Spanish and Catalan to Hebrew and Hollandish. Many later surgical works are abridged copies of Guy's book, and down to the eighteenth century frequent reprintings of the "Grande Chirurgie" continued to appear, for Guy remained the leading didactic surgeon even after the time of Ambroise Paré.

Guy opens with a prayer of thanks and explains why he has felt it worth while to compile this book for the solace of his old age and for his colleagues. He has compiled this, adding nothing of his own, save by chance a little which the humbleness of his mind has judged profitable. He admits there is no lack of books, but no one can own or read them all, and only a god could remember what was in them. "Diverse reading pleases, special reading is profitable, and in writing one is benefited. For the sciences are made by additions; it is not possible for the same man to begin and complete, for we are like children on a giant's neck, seeing all the giant sees and a little bit more."

Guy takes up "certain things very necessary to whomever wishes to profit in the art of surgery." First he defines surgery and its divisions, and insists that surgery is a science, however much one objects that it has often been called an art. There are two surgeries; didactic, which is really a science, and this may be mastered by one who has never practiced, and practical, to which the name of art may be applied, and none can know this without operating. None can become shipmaster, as Galen said, or work at any trade, from reading books; only exercise of the manual arts makes artisans and workers. After discussing the limitations, divisions, instruments and methods of surgery, Guy gives a brief summary of its history.

The first was Hippocrates, who surpassed all



others and first brought medicine to a perfect clarity. Galen followed him; "what Hippocrates had sowed he, like a good laborer, cultivated and increased. Then Paul Aeginetus, who "did many things in surgery." (Guy read only his sixth book, which is a systematic and original surgical treatise written in the seventh century.) Then the Arabs, "Rhasis, Albucasis and Alcaran," who assembled the writings of their predecessors, Halyabbas, "a great master," and Avicenna, who gave "an orderly account of surgery."

Then came Roger, Roland and the Four Masters, Jamier, the brutal surgeon (these were all at Salerno); Brunus, who discreetly summarized Galen, Avicenna and Albucasis, but left out Galen's anatomy. After him came Theodoric, "who stole all Brunus' sayings, and with a few fables of Hugo de Lucca, his teacher, made a book." William of Salicet and Lanfranc also wrote books, the latter "changing the order of the former." Arnold of Villanova made several good books, and Henri de Mondeville began a notable treatise "marrying Theodoric and Lanfranc." Guy is obviously not impressed by the originality of his immediate predecessors.

"And in this day, in Calabria, Nicolas de Reggio, most expert in Greek and Latin tongues, translates many books of Galen at King Robert's request and sends them to us at the papal court. They seem to be of a higher and more perfect style than those translated from the Arabic. Finally there has bloomed a wilted English Rose (John of Gaddesden's "*Rosae Anglicae*") which was sent to me and which I read. I hoped to find in it a sweet odor, and found fables from the Spanish, from Gilbert and Theodoric." Guy concludes his history with:

"And I, Guy de Chauliac, surgeon and master in medicine, from the frontiers of Auvergne, physician and chaplain to our Lord the Pope, I have seen many operations and many writings of these masters, principally Galen."

Guy names the medical sects and their beliefs, concluding with the fifth, composed of women and "many idiots who put their sick of all diseases only in the hands of the saints, saying 'The Lord giveth, the Lord taketh away, blessed be the Lord, Amen.'" Guy says that the members of all these sects follow each other like cranes, one saying what the other has said, but whether for love or fear he knows not. Aristotle shows how this tendency prevents the recognition of truth, and Galen advises the search for things and contempt for words. The latter adds that "Whoever would excel must be different in early youth, seized with passionate love of truth, studying night and day what the most renowned ancients have said. In his prime he can judge after weighing well, deciding what accords with apparent truth, and what must be denied, cutting out this and rejecting that. And it follows that to such a man this book will be useful, to the others it will be wasted, as if one told a fable to a donkey."

Guy bases his conditions requisite to the surgeon in great part on Theodoric, but he gives a

new grace to everything he borrows. The conditions, he says, are suggested by Hippocrates' first aphorism—Life is short, art long, occasions fleeting, experiment misleading and dangerous, judgment difficult. "The surgeon shall be learned, experienced, intelligent, and courageous. He will be learned not only in the principles of surgery, but also in theory and practice of medicine. For, as Galen said, if the doctors did not have to learn geometry, nor astronomy, nor dialectic, nor any other good teaching, then all the cobblers, carpenters, and blacksmiths, dropping their trades, would run to medicine and become doctors."

"Finally he must be courageous, bold in sure things, cautious in dangerous ones, avoiding bad treatments and practices. Let him be kindly to the sick, considerate to his colleagues, discreet in his predictions. Let him be chaste, sober, pitiful and merciful, not covetous nor extortionate of money, but only so that he will accept a moderate fee according to his work, the status of the patient, the kind of cure or result, and the seriousness of the disease."

The "*Grande Chirurgie*" contains chapters on anatomy, inflammations, wounds, ulcers, fractures and dislocations, special diseases from gout to varicose veins, and antidotes or treatments. The eight parts vary greatly in their content, some show only a superficial knowledge, others detailed familiarity. Guy is rather fond of whimsical remarks, thus, after discussing treatment for goiter, including the use of sea sponge (which contains iodine), he adds that all these drugs have much promise, but little effect. This same remark, from Hippocrates, is frequently used to close a discussion. Of great historical interest is his account of the plague in 1348 and 1360. In the former epidemic, the one Boccaccio described, he attended Laura, whom Petrarch so tenderly admired. Laura died, and Guy barely survived his attack.

Of the plague he writes: "The mortality began in January and lasted seven months. It was of two sorts; the first lasted two months, with continued fever and blood-spitting, and they died of it in three days. The second kind lasted all the rest of the time, also with continued fever and boils and carbuncles on the exterior, particularly in the axilla and groin, and they died in five days, and it was of such great contagion, especially that with blood-spitting, that not only in dwelling but in looking one had it from another, so that they died without servants and were buried without priests. The father did not visit the son, nor the son the father; charity was dead and hope crushed. And many were hesitant as to the cause. In some regions they thought the Jews had poisoned the world and so they killed them. In others it was supposedly the poor cripples, and they drove them away."

Guy himself blamed this plague on the conjunction of Jupiter, Saturn, and Mars three years before. One hundred and twenty thousand people died in and about Avignon, including seven cardinals and one hundred bishops.

Although Guy was an expert at operative treatment of cataract (by depression), he refused to operate on John of Luxembourg, King of Bohe-





Anatomy lesson from a fourteenth century manuscript of the "Grande Chirurgie" of Guy de Chauliac. Reproduced from Nicaise edition of this work. We see the master reading from his Mundinus' Anatomy while demonstrating the viscera. The dissection takes place in the bedroom, with a nun praying beside the bed.

mia, who became blind but continued to lead his troops until he was killed at Crécy.

One may cite many technical points in which the "Great Surgery" was notable. The use of sutures was stressed, and nerves were sutured, with no fear of tetanus as had previously been taught. He used silk for most sutures. Penetrating wounds of chest and abdomen were wisely managed and in suturing bowel no foreign bodies were inserted in the lumen. His treatment of head injuries and technique at trephining were very good. He revived intubation and tracheotomy, resected the uvula and tonsils, and though his herniotomies were crude his basic principle was sound. In operating on fistula in ano he stressed the importance of relation to the sphincter, and used a cautery introduced through a wooden tube. Guy is responsible for several important advances; mentions them briefly and clearly, and does not name himself as inventor of any of them. The most important was the use of continuous weight extension and traction in treatment of fractures and old dislocations, the use of splints for fractures of wrist and ankles (these had been treated with bandages for two thousand years), and the use of the catheter to diagnose bladder stone. He also invented a new instrument for extracting teeth and developed the manipulative reduction of hernia. The therapeutists note with amused satisfaction 490 drugs used by this surgeon.

One is always astounded to find the old four humor theory explaining everything, but so it did for Guy as for so many scores of generations. It seems incredible that this absurd theory, wholly philosophical in origin, could have so long satisfied these shrewd fellows. The weight of Galen's word was heavy on the Arab, the Jew and the Frank, and none presumed to refute him. We are equally astounded by Guy's attitude toward healing by first intention, and those who attempted to secure it. Ugone Borgononi, or Hugo de Lucca, practiced in Bologna and in the Holy Land

in the first half of the thirteenth century. Quite alone, he worked out aseptic wound healing. Cleanliness, avoidance of trauma, sounds or tents, and the use of strong wines for wringing out his bandages, were the means used by him to get union without pus. His son, Theodoric, wrote up his methods, which were preached in France by De Mondeville. The latter slightly improved the technique and got beautiful scars even in large wounds. All this was abandoned by William of Salicet, Lanfranc and Guy, who takes particular delight in deviling Theodoric, although his book contains much that Guy used. Mondeville, physician to Philippe le Bel, explains why these methods were abandoned, for he says he was persecuted by all and only allowed to continue because of the protection of Count Valois. Mondeville's book contains much on fee collecting, and the superiority of surgery over medicine, particularly in a financial way, but in spite of this never had a wide popularity. Theodoric's methods were held fabulous by Guy, who either did not try them, or was afraid to refute authority. The loss of this technique, and the abandoning of anatomy in Guy's time are the chief evidences of a medical decadence.

Guy's "Surgery" is charming for its pithy style, its trenchant comment, and its honest philosophy. His *Capitulum Universale* (or introduction) is a great monument of medical teaching, full of sound reasoning and lofty sentiment. We have no authentic contemporaneous portrait of Guy, but can know him well from his book, the solace of his declining years. One would think his erudition unique, were it not that we are shown a similar character by Chaucer. Chaucer was a contemporary of Guy de Chauliac, and had been in Avignon and Italy.

The "parfit practisour" of England in 1380 was no benighted magician of the Dark Ages, but knew the medical classics better than many of us who live after the Renaissance, and the list of his medical teachers brings to mind the ninety authors quoted in the "Grande Chirurgie."

Wel knew he th' olde Esculapius,  
And Deiscorides, and eek Rufus,  
Old Ypocras, Haly, and Galien,  
Serapion, Razis, and Avicen;  
Averrois, Damascien, and Constantyn;  
Bernard, and Gatesden, and Gilbertyn.

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(The physician in *Canterbury Tales* has been regarded by certain medical critics of recent time as a caricature of medical vices of the fourteenth century. This can hardly be true, as Chaucer gives to this man the most heroic of all the tales—*Virginus and Virginia*—and considerable erudition. The astrologic feature was, of course, not considered absurd by Chaucer.)



## CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

### TECHNIQUE IN LATENT OR SUSPECTED URETHRITIS

By WALTER G. SCHULTE, M. D.  
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**P**ATIENTS often present themselves with a history of a recent urethral infection and a request that they be examined to determine whether a cure has been established.

There is no visible urethral discharge and the urine is clear. The prostatovesicular secretion is normal.

If the urine has been voided into large containers many pus cells may be present and escape detection unless it be carefully centrifuged, a routine which is not always followed because it is more or less time-consuming.

It occurred to me that we would be more apt to detect pus, and simplify our technique, if we examined the first few drops of urine voided, as they would contain all the secretion of the urethra, undiluted. The specimen can be examined fresh for pus and epithelial cells, and it can then be dried and stained and examined for bacteria. We are thus less apt to miss a latent infection and can prevent the spread of the disease.

It was with the foregoing in mind that the following work was done:

In order to determine what constitutes a normal first few drops of urine, thirty-five healthy males from 18 to 32 years of age were examined. These were volunteers who, so far as could be ascertained, had never been exposed to venereal infection. General health was good in thirty-two and fair in three.

The examination was conducted as follows: They were asked to expose the genitals. The glans penis and anterior meatus were gently swabbed with 2 per cent mercurochrome. The urethra was compressed just behind the glans, and the first few drops of urine collected upon a sterile slide. Cultures were taken at once. The fresh specimen was examined for leukocytes and epithelial cells or other elements. It was then dried, fixed and examined as a stained specimen for pus and bacteria.

The individual was requested to again compress the urethra. The prostate and vesicles were examined, massaged, and their expressed secretion collected upon a sterile slide. Cultures were taken, the fresh specimen examined further, as were the specimens of urine.

Of the thirty-five specimens of the first few drops of urine examined, seven (20 per cent) contained no pus cells, and in thirteen (37 per cent) there were no epithelial cells.

An occasional pus cell was found in twenty-four (68 per cent) and an occasional epithelial

cell in nineteen (54.2 per cent). There were a few pus cells in three (8½ per cent) and a few epithelial cells in three (8½ per cent). In only one individual (3 per cent) were there many pus cells and epithelial cells.

Bacteriological examination of these thirty-five specimens yielded sterile cultures in eight (22.9 per cent). The staphylococcus albus was found in all of the remainder, associated with many other organisms, a Gram-positive diphtheroid bacillus, Gram-positive and negative cocci, streptococci and Gram-positive short thick rods. Gonococci were not found.

In the prostatovesicular examination, the prostate was regarded as normal when it measured between three and four centimeters in transverse diameter, was uniformly soft in consistency and almost lost its outline upon expression of its contents, and was not tender upon palpation.

In this series twenty-three (65 per cent) were normal. In twelve (34.2 per cent) the prostate was increased both in size and consistency. These were regarded as slightly abnormal.

In the prostatovesicular fluid of these cases there were no pus cells in three (8½ per cent). In twenty-eight (80 per cent) they were found occasionally. In three (8½ per cent) there were a few, and in two (5.7 per cent) there were many.

Epithelial cells were not found in the secretion of sixteen (45.7 per cent). In eighteen (51 per cent) there were a few, and in the remaining cases (3.3 per cent) there were many.

Von Lakum has shown that we do not always find pus cells at the first examination, probably because some of the tubules are occluded, but they will be found at a subsequent massage. I have demonstrated them in the ejaculated semen when the fluid expressed by massage was negative. Therefore some of these individuals may have had pus in the prostatovesicular secretion in spite of our negative findings.

#### SUMMARY

From the foregoing study we conclude that in normal individuals the first few drops of urine may contain an occasional pus cell. It is difficult to say where it comes from, the glands of Littre or the prostatic urethra. More than an occasional cell must be considered abnormal. The same is true of epithelial cells. When there are many of the latter it is usually easy to demonstrate urethral lesions.

In 66 per cent the prostate was small, soft and easily compressible, so that it almost disappeared upon mild massage.

This was considered normal. There was tenderness in three individuals.

The seminal vesicles were not palpable in eighteen (51 per cent). The vesicle was outlined on

one side in eight ( $22\frac{1}{2}$  per cent), and both sides in nine (25 per cent).

The bacteriological findings of the prostatovesicular secretion were the same as those of the first drop of urine.

#### COMMENT

As a routine procedure, the first few drops of urine give us definite information of the condition of the urethra.

It is an aid in cases presenting themselves for examination after a urethritis to determine whether a cure has been established.

The occasional patient will have difficulty in collecting the specimen, but a second attempt is successful.

Any shreds will be found in the first few drops of urine.

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### BLOOD SUGAR AND BLOOD PRESSURE UNDER EMETIN TREATMENT FOR ARTHRITIS\*

By MERRILL C. MENSOR, M. D.  
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DURING a recent symposium on adrenal disease, Dr. Arthur Bloomfield<sup>1</sup> expressed the opinion that the symptoms of adrenal shock bore a striking similarity to those of a patient suffering from hypoglycemia. This statement imme-

\* From the Department of Orthopedic Surgery, Stanford University School of Medicine, San Francisco.

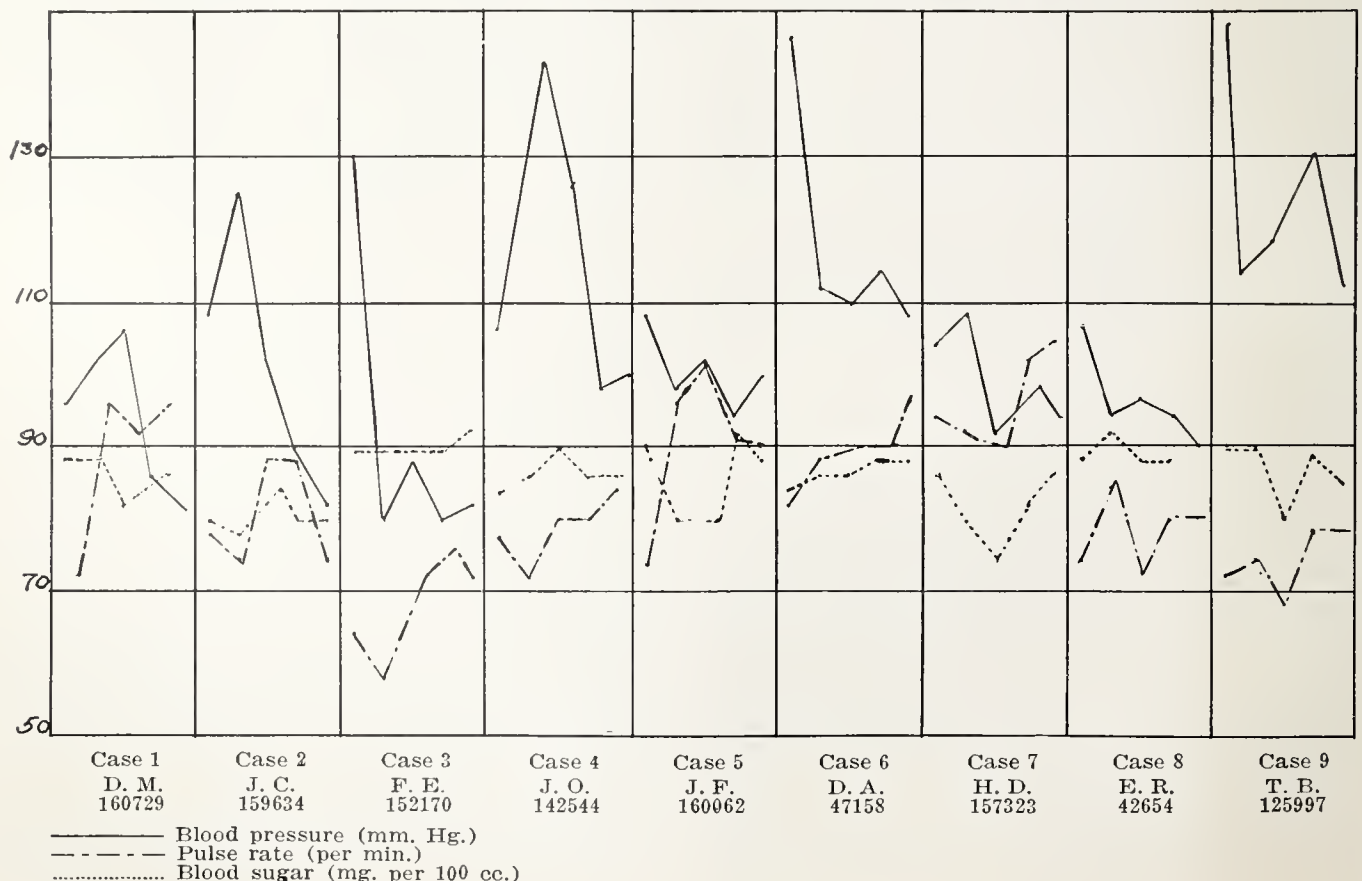
diately brought several questions to my mind as to the possible interrelationship between two apparently divergent viewpoints in the therapy of arthritis, as shown in the following statements:

Pemberton<sup>2</sup> and his colleagues have reported in several articles a definite decreased sugar tolerance in arthritic cases which they attributed to a change in the blood flow to the diseased part. In over 60 per cent of his arthritic patients there was a definite delay in the removal of sugar from the circulating blood.

In our treatment of arthritis by the injection of emetin hydrochlorid after the technique devised by Ely,<sup>3</sup> and assiduously followed for the past five years in the orthopedic department of Stanford University School of Medicine, it has been our custom, in order to control our dosage and safeguard the patient, to make daily blood pressure and pulse readings before each treatment with emetin. Our observations, as shown in the accompanying chart have disclosed a rather uniform drop in blood pressure and rise in pulse rate. Now the usual explanation for this phenomenon, according to Sollman,<sup>4</sup> is that emetin is a cardiac depressant, causing a varying degree of vasomotor paralysis and toxic myocarditis. We were content with this explanation until the possibility of an independent adrenal depressant effect was suggested.

Admitting temporarily the correctness of Pemberton's blood sugar determinations, it is feasible that, after all, there might indeed be some relationship between the sugar metabolism and the emetin treatment of arthritis. Our patients under

*Variations in Blood Pressure, Pulse, and Blood Sugar During Emetin Therapy*





emetin treatment begin to improve with a definite and continued fall in blood pressure. Bloomfield notes the similarity between adrenal disease and hypoglycemia.

Is it not conceivable that the emetin is having a direct effect upon the adrenals, causing a low blood pressure and at the same time decreasing the blood sugar, thereby giving the beneficial results we have noted? In support of this contention several investigators have shown that there is a definite relationship between adrenal secretion and the glycogen content of the blood. Prominent among these are Ohara<sup>5</sup> and Hiriyama,<sup>6</sup> who have experimentally produced a hyperglycemia in rabbits by the infusion of adrenalin. Chapman,<sup>7</sup> investigating the blood sugar in Addison's disease, found a low blood sugar and increased tolerance for carbohydrates.

#### DEDUCTIONS FROM CASES REPORTED

Although it is our opinion that the benefit from emetin therapy is due to the destruction of the parasitic infestation in the stools, a possible synergism between the two ideas is feasible, and we endeavored to investigate the same with the following results:

Among the cases about to start treatment for chronic "type 2" (hypertrophic) arthritis, twelve were selected at random. Their diet was standardized, being of a fairly high carbohydrate content. Before the treatment was started their "normal" blood sugar was determined. This was repeated following their third, seventh, and eleventh treatment, our total injections being twelve in number on as many consecutive days. Coincidentally their blood pressure and pulse rates were recorded as per the chart. In eleven out of twelve cases there was a definite decrease in the blood pressure, but although the blood sugar was found to vary a few hundredths of a milligram during the period of observation it was always well within the limits of normal.

#### CONCLUSIONS

1. In our small series we have been unable to determine any abnormality in the blood sugar of arthritic patients.
2. Emetin therapy has no effect upon the glycaemic content of the blood.
3. Patients under emetin treatment exhibit a definite decrease in blood pressure and increase in the pulse rate.
4. The circulatory changes noted with emetin are probably the result of a direct action upon the vasomotor system and the myocardium without relation to the adrenal substance.

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Insanity Plea in Court.—A defensive plea of insanity in criminal trials is usually a disgrace which is receiving the attention of psychiatrist and jurists. The abuse of the plea consists largely in bought testimony. The New York *Herald-Tribune* of June 4 comments editorially on new laws adopted by two states providing for the determination of the sanity of a prisoner before his trial, thereby avoiding the submission of the question of insanity to the judgment of a jury. The editorial reads:

"In Massachusetts, under a law passed in 1921, persons accused of a capital offense and those indicted for a felony more than once are mentally examined before trial by experts of the State Department of Mental Diseases. The department then files a report of its examination with the clerk of the court in which the trial is held. This report is accessible to the court, to the district attorney and to the attorney for the person accused and is admissible as evidence. The results have been highly gratifying. Since the law was adopted there has been an average of less than one case a year in which alienists have been employed by the defense in trials. 'It has effectually stopped the discredited practice of mental experts taking employment on either side of a capital case for large fees and has saved the state costly trials in a number of cases.'

"The Colorado statute differs in detail, but is based on 'the same fundamental idea of removing the determination of the sanity of the person accused from the jury and placing it in the hands of disinterested qualified experts.' The committee, after more than a year's investigation of the subject, believes that either the Colorado or the Massachusetts law marks a decided advance over present procedure elsewhere and may be used as a model by other states with great advantage to society. The extremely high character of its personnel, to say nothing of the crying need for reform as demonstrated by the Remus verdict, entitles its recommendation to the prompt and earnest consideration of every state legislator."

The editorial was inspired by the report of a special committee printed in the news columns of the June 4 *Herald-Tribune*, which reads:

"In a special report by the subcommittee on medical aspects of crime, made public yesterday by the National Crime Commission, 120 Broadway, it was recommended that the legal procedure in criminal trials be altered so that juries would not pass on the mental responsibility of accused persons.

"Newton D. Baker, chairman of the National Crime Commission, said the bewildering effect of contradictory expert testimony and the unaccountable effect of the sympathies of the jurors on verdicts recently rendered in cases in which insanity was set up as a defense was responsible for the attention given the matter by the subcommittee at this time."

Physicians of New York will welcome a law like that of Massachusetts and Colorado.—*New York State J. Med.*

# BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

## OBESITY, AND ITS TREATMENT

**Hans Lisser, San Francisco**—A bulky condition, common and obvious through the ages. Extraordinary therefore that we know so little about it, and that as we have come to know more we are less certain and dogmatic than formerly, more tentative in our ideas of etiology, more tolerant in our conceptions of treatment, and more curious as to future disclosures.

It was a simple task to discourse on obesity even a few years ago: a person became fat by eating too much, and another remained thin by not eating enough. He who knew his calories might tip the scales at any point desired. There was some truth in this common conviction; there still is, but not the whole truth nor anything like the degree of truth formerly believed.

In introducing the theme for subsequent discussion it seems expedient to sketch in bluntly the bolder outlines; leaving assent or denial, approval or disputation to those who are to follow. The demands of brevity will result in statements unavoidably terse and bald. They are to be taken as the desiccated extracts of opinions more elaborately expressed by the writer on previous occasions.

1. Obstetricians and pediatricians should cease congratulating proud parents on babies whose birth weight is nine pounds or over. Suspect congenital hypothyroidism.

2. Fat boys and girls may be jolly and seemingly healthy; but obesity in childhood is always pathological and chiefly endogenous. "A normal boy or girl cannot overeat" (Mendel).

3. Obesity in childhood is sometimes due to hypothyroidism; more often it is caused by hypopituitarism, or possibly by disturbance of supposed genitotrophic centers in the hypothalamus.

4. Obesity in childhood is a handicap in normal play and athletics; more important, however, is its frequent association with genital retardation, with incomplete maturity, and with the psychic embarrassment caused thereby.

5. It is worth while treating these children; gratifying success can be obtained by a reasonable restriction of starches and fats, and a judicious use of thyroid and whole pituitary substance, preferably combined in a salol-coated capsule. Dosage must be individualized and patients must be kept under observation. Striking transformation in figure and genital development can usually

be attained. Careful treatment involves no risk. Careless treatment is either futile or dangerous.

6. Adult obesity is often due to excessive food intake and insufficient exercise (exogenous). Nevertheless constitutional thinness may exist despite a similar food intake and relative inactivity. Moreover a respectable percentage of very obese individuals are reasonable eaters and some of them remain fat despite a low caloric intake. Obviously then a key to the calories will not unlock all the secrets of pathological obesity or under-nutrition.

7. Most obese individuals have a normal basal metabolic rate (at least as calculated by present standards). "In pituitary disorders, however, we are dealing oftentimes with bizarre persons—short, fat people with small extremities, and overgrown people with hypertrophied extremities. Hence the relation of the body surface to stature and weight may differ considerably from the average normal. It is possible, therefore, that the basal metabolic rate for pituitary cases, to be comparable, should be calculated from a modified formula" (Cushing and Davidoff).

8. Even a low basal metabolic rate is not necessarily indicative of thyroid deficiency. In 107 cases of clinical hypopituitarism with histologically verified chromophobe adenomas (Cushing's Clinic), dependable metabolism determinations (calculated by the standard formulas of Du Bois), averaged minus 14 per cent. Seventy-one, or 66.3 per cent, had a rate below minus 10 per cent with an average of 19.3 per cent, the lowest being minus 36 per cent.

It is hardly necessary to add that clinical hypopituitarism in the great majority of instances is a functional deficiency of the hypophysis without tumor formation; just as myxedema is a non-tumorous deficiency of the thyroid. Obesity is an outstanding characteristic of hypopituitarism, especially the so-called "girdle type."

9. Hypothyroidism is rarely accompanied by extreme obesity. Patients with true myxedema when treated with thyroid extract may lose twenty to thirty pounds, by dissipation of myxedematous deposits and fluid loss, but this initial loss of weight is often followed by a gain in weight when their metabolism has been restored to normal (Lawrence).

10. Nevertheless thyroid substance, when carefully prescribed, is often helpful in reducing individuals whose obesity is not due to hypothyroidism. A normal basal metabolic rate is not a contraindication to its use. Indeed, it is a sur-



prising paradox that such patients tolerate far larger doses of thyroid substance than those with low metabolic rates. I have seen the tiny daily dose of three-fourths grain thyroid substance (Burroughs and Wellcome fresh gland) raise the rate of a myxedematous woman of fifty years from minus 17 to plus 14, a very sensitive tolerance. On the contrary, I have failed to raise the rate above normal in a 16-year-old girl despite the staggering dose of 20 grains daily of Armour's desiccated thyroid (equivalent to 100 grains of Burroughs and Wellcome product). I am quite unable to offer any explanation for this curious contradiction though I have observed it repeatedly.

11. Thyroid extract is a safe and potent drug when carefully used. It is a dangerous remedy when carelessly administered. So is every other effective remedy. Only impotent drugs are harmless. The sale of thyroid extract to the laity without prescription should be forbidden by law. This would be sensible, but the widespread propaganda of frightening the public has gone too far. Many physicians even, are positively panicky about its use. Apparently they are unfamiliar with the abundant signs of overdosage, easily recognized and readily checked by estimations of the basal metabolic rate. Toxicity of a few weeks' duration usually vanishes within a week after withdrawal of the drug. Only prolonged toxicity over many months results in permanent damage. It takes months and sometimes years to wreck the heart or nervous system in spontaneous Graves' disease or in toxic adenomata. The same holds true in artificial hyperthyroidism from administration of thyroid substance, and there is no excuse for the latter.

12. Deficiency of ovarian or testicular function is often associated with obesity. The available ovarian and testicular extracts are ineffectual in reducing this obesity.

13. Although obesity is common in diabetics, diabetes is rare in obese people.

14. Other factors than endocrine disease may cause obesity. Otherwise it would not be necessary in refractory cases to resort to subcaloric diets to effect reduction. Mason has employed pitifully low rations—400 calories per day. It is quite unnecessary to maintain such patients in nitrogen equilibrium. "Subcaloric feeding does not result in a serious body nitrogen loss, as there is a marked tendency for the protein combustion to fall to a low level" (Mason). In no case, during the experimental periods (lasting 63 to 117 days), was there any evidence of ketosis. These careful investigations of Mason, Strouse and others indicate that the pathologically obese and slender individual displays an abnormal specific dynamic reaction to foods.

15. The science of reduction is not a stunt. It is a sensible medical practice for the relief of aching backs and limbs; it reduces the load against which the heart and blood vessels must operate, thus contributing to the alleviation of dyspnea and the reduction of blood pressure (of course thin

people may suffer from hypertension). It diminishes the strain on functional efficiency especially on the part of the ductless glands.

16. For these reasons it should interest the internist and general practitioner, and be handled intelligently and conscientiously. Too often it meets with indifference or ridicule, so that the patient seeks the cultist or faddist. A rapid reduction is rarely desirable and sometimes dangerous. After all there is no hurry about it as one is never done with it. Only rarely in the writer's experience has an obese person been "cured," if we mean by that word the capacity to eat anything and everything without regaining. Once obesity has been well established it means a battle of a lifetime to keep it at bay.

17. It hardly seems necessary to add that the above remarks are not concerned with those who are from five to fifteen pounds over the stylish figure and whose craving for slimness is not influenced by considerations of health or even of beauty, but by the dictates of fashion. Finally, there is no royal road to reduction, whether it be by diet, purgation, massage, vibration, victrola, radio, or "glands."

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**Roland Cummings, Los Angeles**—This terse paper of Doctor Lisser's is very timely and most interesting. The public has gotten the general idea that weight connotes excess food and that all that is necessary to reduce is to curtail the diet. While in a general way this is true, yet there are many instances in which food is the least causative factor in the production of fat. Patients, as Doctor Lisser suggests, can live on 400 calories a day and still remain obese.

In general, the causes of obesity might be divided into (1) excessive eating and underexercise, (2) endocrine deficiencies, and (3) disturbances of nutritional centers.

Probably the larger number of obesities seen at the present time belong to the endocrine group. The unfortunate thing about this group is that, although theoretically one can classify the subject, it is not so easy to apply the treatment—as examples, obesity due to deficiency of the pituitary gland and to gonadal deficiency. In my hands the use of these extracts has not been successful. In fact I am not certain that I have ever had a patient who has gotten any reduction from the use of either pituitary substance or ovarian extract. I have had instances where I fancied that these extracts might have assisted in the reduction, but there has been no instance where I have been positive.

On the other hand, the hypothyroid states are very different. I agree with Doctor Lisser that thyroid extract is definitely helpful in the reduction of the obesities that are not due to hypothyroid states, or at least obesities that are not accompanied by the signs that we now understand to be due to a lessened thyroid function. In fact, we

use thyroid extract to assist in the reduction of all the subjects suffering from an excessive weight, regardless of whether they are due to hypernutrition, myxedema, hypothyroidism, or whether they belong to the indefinite group that are thought, at least by some, to be a disturbance of the centers of nutrition. We shall continue to treat obesity in the more or less empiric manner that is being used at the present time, until the causative factors are more clearly understood. Until we have an explanation of why the specific dynamic action of proteid foods does not affect the obese as it does the normal individual, a definite knowledge of the causes of obesity will remain very obscure.

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**W. D. Sansum, Santa Barbara**—Doctor Lisser has discussed the subject of endocrine obesity concisely and well. We need many other glandular products in addition to the slightly active anterior pituitary and the potent thyroid extracts.

During the past three years I have been using an enteric coated desiccated thyroid tablet prepared for me by Parke, Davis and Company. In most instances I have found this form from three to four times as active as the uncoated form. The initial lot of these tablets was made for one of my obese patients who required 20 grains of desiccated gland for clinical control. There was a marked variation in her basal rate. At times she seemed to be perfectly controlled; at other times there were evidences of hyperthyroidism associated with a plus 15 basal rate, and again at other times she had a basal rate of minus 11. One 5-grain enteric coated tablet not only seemed to give excellent clinical control but an almost perfect basal rate. I do not use thyroid extract unless the basal rate is depressed.

With or without glandular medication, diet and exercise play a very important part. I have found the following principles and diet formulas very efficacious.

1. The diet should contain ample of the starches and sugars in the form of the low percentage fruits and vegetables. Fats do not readily burn except in the fire of burning carbohydrates. Therefore there should be at least one part of carbohydrate in the diet for each part of fat in the diet as well as for each part of fat lost as body weight. The fruits and vegetables, which should comprise at least two pounds per day, serve four purposes, namely, furnish bulk for bowel management, assist in maintaining an alkaline balance in the body, provide mineral foods and vitamins, and keep the patient comfortably satisfied.

2. Practically all visible fat should be eliminated from the diet. The worst offenders are butter, cream, rich milk, and salad dressings made with oil.

3. The diet should contain not over 800 calories until the patient can take a reasonable amount of exercise, but later when he is able to take

sufficient exercise, 1000 or 1200 calories should be given. The following formulas have proved adequate.

| <i>Carbohydrates</i> | <i>Proteins</i> | <i>Fats</i> | <i>Calories</i> |
|----------------------|-----------------|-------------|-----------------|
| 100                  | 60              | 20          | 820             |
| 130                  | 60              | 27          | 1003            |
| 172                  | 60              | 30          | 1198            |

4. An adequate amount of protein, 50 to 60 grams, must be used both for maintenance purposes and for specific dynamic action. This may be served in the form of lean meat, chicken, fish, eggs, skim milk, buttermilk, and cottage cheese.

5. Although a skilful dietitian can balance such a diet to a neutral urine I advise the use of 10 grains of sodium bicarbonate three times per day.

6. The patient must be trained to exercise. I use the word "trained" because short walks of not more than a block at a time repeated often may be necessary at first to strengthen unused muscles. I advise walking in the beginning. Tennis, golf, and horseback riding are entertaining forms of exercise for those who can afford them. I have never had a patient fail to lose, even when confined to bed, on the 800 calorie diet. On the 1000 calorie diet my patients usually lose at the rate of ten pounds per month when they can walk five miles per day, and twenty pounds per month when they can walk ten miles per day. On the 1200 calorie diet, with ample exercise—that is, about fifteen miles per day or the equivalent in other forms of exercise—many of my patients have lost at the rate of one pound per day with no untoward symptoms, objective or subjective. While attending a dance I always advise my patients to drink a glass or two of punch.

On such diets, which are high in carbohydrates and low in fats, patients lose all of their lethargic tendencies. When they attain an average weight or, better still, an ideal weight, they are not only cured, but with little effort remain cured by limiting the fat to a moderate extent and taking a reasonable amount of exercise. Henceforth they are able to enjoy a normal diet without fear of gaining weight.

Many patients do not require weighed diets, but need only to be taught to leave all of the usual starches and sugars in the diet and eliminate only the gross fats, such as butter, cream, and oily dressings.

\* \* \*

**Albert H. Rowe, Oakland**—Obesity in childhood and adult life usually is due to other factors than overnutrition as Doctor Lisser has emphasized. Overeating and physical inactivity may be the cause of overweight though some of the following predisposing causes are usually present.

1. A disturbance in carbohydrate metabolism not necessarily associated with the pancreas is frequent in the obese. Hagedorn feels that such an "abnormal increased transformation of carbohydrate into fat" is frequent in obesity.

2. John, in a recent study of "The Relationship of Obesity to Carbohydrate Metabolism," found diabetes or its tendency in about one-half of his cases of obesity indicating an actual dysfunction of the pancreas. Thus the frequency of



diabetes in the obese as emphasized especially by Joslin may indicate a pancreatic disturbance as one of the predisposing causes of overweight.

3. Pituitary insufficiency is known to give rise to generalized obesity in youth and to the girdle type of obesity in adult life.

4. Hypogonadism produces trochanteric and mons adiposity in young adult life and in addition, after thirty to thirty-five years, a generalized obesity as seen at menopause.

5. Thyroid insufficiency is a frequent cause of overweight in babies up to the age of two. After this age hypothyroidism is not an especially frequent cause of obesity and is often absent in adult myxedema.

True obesity is not to be confused with dystrophia adiposo genitalis (Fröhlich's syndrome) or adiposis dolorosa (Dercum's disease). Thus obesity in most cases is due to more than overeating and lack of exercise. The tendency to obesity is rarely overcome and must be constantly controlled throughout life. Treatment will be discussed under the following heads:

1. *Diet*—A low calorie diet of from 600 to 1000 calories will often bring about the desired reduction in weight. Such diets should contain liberal amounts of fruits and vegetables of the 3 to 5 per cent carbohydrate groups and moderate amounts of the 10 per cent groups. Skimmed milk, lean meat or fish should be taken in moderation at each meal. Fat should be excluded. The diet should contain approximately the following amounts of food, though weighing is unnecessary: carbohydrate, 50 to 100 grams; protein, 45 to 60 grams; fat, 10 to 20 grams. Such a diet will contain sufficient carbohydrate to prevent acidosis, enough animal protein for metabolic requirement, low calories, and enough vitamins and mineral salts to prevent deficiency diseases. When reduction in weight occurs the diet can be gradually increased especially in the carbohydrates and milk in order to maintain the vitamin and mineral salt intake.

2. *Exercise*—Exercise is most important in weight reduction since it increases calorie consumption. Setting-up exercises, walking, or other forms of physical activity should be prescribed by the physician according to the patient's strength and health, and such exercise should be increased and made a daily routine. Many patients who have slight if any ductless gland insufficiency need no other measures than regulation of their diet and exercise to control their obesity.

3. *Ductless Gland Therapy*—Thyroid medication is indicated when signs of hypothyroidism are present and the metabolic rate is low. Means, in 1916, showed that the metabolic rate rarely indicates marked hypothyroidism in obese patients. However, I usually give thyroid in doses sufficient to bring a moderately low rate up to zero or plus five, thereby increasing the rate of metabolic activity. In some cases such a result necessitates 10 to 20 grains of desiccated thyroid even in young people as compared with the dose of

from 4 to 6 grains usually necessary to control the most severe type of true myxedema. Such thyroid therapy, however, must be controlled by frequent and accurate metabolic rate determination.

With signs of hypopituitarism, pituitary by mouth may be administered in 3 to 5 grain salol coated capsules, though I have never observed any marked benefit from such therapy.

The obesity of hypogonadism is also difficult to influence with glandular therapy. I have given ovarian substance hypodermically over long periods, with improvement in the symptoms of such deficiency and apparently with beneficial effect on the obesity in some patients. Such therapy is undoubtedly worthy of trial.

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Economic Loss by Cancer.—Cancer is a major source of loss to the community and, unfortunately, here we have increases to record in recent years, instead of a decrease. Cancer, however, is a condition which occurs usually later in life, toward the end of the economically productive period, hence the economic losses involved are not quite so calamitous as in the case of tuberculosis. Nevertheless, even in this case, a very considerable number of deaths occur at younger ages, more perhaps than commonly supposed. For example, under 25 years of age, there are every year about 1600 deaths from cancer; and between 25 and 35 years of age there are close to 3000 deaths every year. Between 35 and 45 there are, every year, nearly 10,000 such losses of both men and women, more women than men. This means families broken up, widows compelled to find a new way of supporting themselves, children taken from school and all those disturbances and disarrangements of family life which come with the death of a parent. All such deaths involve serious money losses. The extent of this loss through cancer occurring among persons who are still economically valuable can be estimated by computing the money loss in each age group. We find, for example, that deaths under 25 years of age involve losses of thirty-eight millions of dollars; between 25 and 35, of sixty-two millions of dollars; between 35 and 45, of one hundred and sixty millions of dollars; between 45 and 55, of two hundred and thirty-three millions of dollars, and so on up to age 75 where we estimate that the money value, that is, the earning power of the average man is no longer appreciable. The important thing to remember is that the total runs up to six hundred and eighty millions of dollars, according to the figures of 1927. That is a considerable sum of money—six hundred and eighty millions of dollars. It is a tenth of the total value of all iron and steel manufactured in the United States. It is the same as though 300,000 men were out on strike for a year and not producing; it is as much as the total current income of the state of Louisiana. And this is not all. One of the worst features of cancer is the fact that its victims, before succumbing to the disease, pass through a long period of illness and suffering, during which they are continuously less productive and finally must take to their beds and become quite helpless, requiring the attention of nursing care, either professional or from some member of the family. The total loss from this phase of the disease is enormous, hardly calculable. At a very conservative estimate, the cost of medicine and nursing alone—that is not counting loss in wages—is, at the very least, \$1000 per case. That means that the 110,000 cancer deaths involve a loss of an additional one hundred and ten million dollars, which added to the six hundred and eighty millions, means practically eight hundred millions of dollars—*Statistical Bulletin*.



## California and Western Medicine

Owned and Published by the

### CALIFORNIA MEDICAL ASSOCIATION

Official Organ of the California, Utah and Nevada Medical Associations

BALBOA BUILDING, 593 MARKET STREET, SAN FRANCISCO

Telephone Douglas 62

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Subscription prices, \$5.00 (\$6.00 for foreign countries); single copies, 50 cents.

Volumes begin with the first of January and the first of July. Subscriptions may commence at any time.

Change of Address—Request for change of address should give both the old and the new address. No change in any address on the mailing list will be made until such change is requested by county secretaries or by the member concerned.

Advertisements—The journal is published on the seventh of the month. Advertising copy must be received not later than the 15th of the month preceding issue. Advertising rates will be sent on request.

Responsibility for Statements and Conclusions in Original Articles—Authors are responsible for all statements, conclusions and methods of presenting their subjects. These may or may not be in harmony with the views of the editorial staff. It is aimed to permit authors to have as wide latitude as the general policy of the journal and the demands on its space may permit. The right to reduce or reject any article is always reserved.

Contributions—Exclusive Publication—Articles are accepted for publication on condition that they are contributed solely to this journal. California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

## EDITORIALS

### A PRACTICAL APPROACH TO REQUIREMENTS FOR THE M. D. DEGREE

In recent years, very considerable discussion has taken place concerning the time and expense involved in securing the degree of M. D. from a Class A medical school.

From the hodgepodge requirements existing prior to the 1909 Flexner and Carnegie Institution reports, our American medical schools jumped to almost the opposite extreme. The jump to idealistic standards would not have been so important to us today, except for the fact that in one state after the other, leaders in our profession made portions of these idealistic medical school education requirements a part of their respective state medical practice laws. Most of the states, as they brought these newer standards into operation, gave themselves additional gratification in their legislative enactments by refusing reciprocity to medical graduates coming from states where equally high idealistic paper and legal standards did not obtain.

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One of the consequences of these newer standards of medical education, which have been put in operation during the last two decades, has been the replacement of the former lesser standard, quite decent and reputable nonsectarian medical schools of the period before the Flexner report, by out-and-out absolutely low standard cultist schools of the healing art. Therefore, so far as public health interests are concerned, there are probably today more practitioners of the healing art (when graduates of both nonsectarian and

sectarian schools of healing are included) than would have come from the nonsectarian schools alone under the system antedating the Flexner report.

It likewise follows that it is questionable whether lay citizens, all classes included, by and large, are getting as safe and as efficient treatment as would have been placed at their service under the old system with its natural developmental improvements. However, our nonsectarian medical school housecleaning was carried on and through in vigorous fashion, and being a thing of the past, it is useless to indulge in much idle speculation thereon. The problems now facing us are: to consider the defects existing in the newer system now in vogue, and to determine how some of these may best be remedied.

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It may be stated that a large number of members of our profession, both in and out of our medical school faculties, were not carried off their feet by the full four years liberal arts undergraduate degree requirement as a very necessary provision in a high standard medical education. Many of these physicians have held from the beginning that a four years high school education, with two years of preliminary liberal arts work in the basic premedical sciences and a four-year medical school training, was an ample average and fair theoretical requirement for the M. D. degree, and a good qualification for eligibility to take an examination for medical licensure.

Many of these colleagues who held to that viewpoint, also believed that the two years thus saved from the four-year college or liberal arts course, could be very well added to the one-year compulsory internship now required, so that the theoretical training would be fortified by a three years internship or clinical or postgraduate practical training at the bedside. Many physicians in practice who have held viewpoints akin to those just indicated have felt that such a system would produce physicians and surgeons measuring up as well or better than those produced under the four-year liberal arts premedical—with only one year internship, system.

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A very interesting article presenting some illuminating facts and opinions, and dealing with this subject, is to be found in the *Journal American Medical Association* of June 2, 1928, page 1812. It comes from a faculty member of the newly established medical school of Duke University at Durham, N. C. The article is by W. C. Davidson, M. D., and has suggestive value for all who are interested in standards of medical education. It is our own belief that the next few years will witness a considerable, organized effort to bring into being in a number of states of the Union what might be called this program of the Duke University School of Medicine.

The standards laid down by Doctor Davidson are common sense, practical standards, capable of producing as good or better graduates than are produced today, and capable of giving as good or better service to the laity. It is to be remembered,



that in the last analysis, it is high standard efficient service to the people that is of most importance to both the best interests of the state and to our profession.

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The subject of medical standards and licensure should have a very live interest to Californians in the next year or two, because the new Professional Standards Department which the 1929 legislature will probably bring into existence, will necessitate close observation of the workings of our Medical Practice Act. A perusal of the article by Davidson will aid us all in our future discussions on policies which should be followed and actions which should be taken.

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### MARTYRS TO SCIENCE AND THE WORLD'S WELFARE—NOGUCHI ENTERS THE ETERNAL HALL OF FAME

Theodore Roosevelt in a White House letter to Congress in the year 1906, inclosing papers bearing on the yellow fever commission of the United States Army Medical Corps stated: "Major Reed's part in the experiments which resulted in teaching us how to cope with yellow fever was such as to render mankind his debtor, and this nation should bear witness to this fact."

These same thoughts with minor changes could be used in reference to to Jesse M. Lazear, Adrian Stokes, Hideyo Noguchi and the other great hearts and minds of our profession, who have laid down their lives in order to do service for their fellow men, by helping to add new knowledge which would aid the world in ridding itself of the yellow fever scourge.

\* \* \*

It is an heroic story, that of the career of the late Walter Reed, a graduate in medicine from the University of Virginia in 1869, entering the army medical corps in 1875, then for fifteen years in army posts in Arizona and the West, studying bacteriology at Johns Hopkins during one of his assignments at Baltimore, head of the typhoid fever commission of the Spanish American War, and later head of the yellow fever commission under General Leonard Wood at Havana, Cuba.

\* \* \*

In the 1911 government report on yellow fever, above referred to, appears this sentence, "On September 13, 1900, Doctor Lazear, while on a visit to Las Animas Hospital, Cuba (for the purpose of collecting blood from yellow-fever patients for study) was bitten by a mosquito of undetermined species, which he deliberately allowed to remain on the back of his hand until it had satisfied its hunger. Five days thereafter he came down, without other exposure, with yellow fever, which progressed steadily to a fatal termination."

\* \* \*

The Rockefeller Foundation Report of 1927, by its president, George E. Vincent, and recently off the press, mentions an Irish doctor, Adrian Stokes, professor of pathology at Guy's Hospital,

London, whom the Foundation sent to the West Coast of Africa to study the yellow fever of that continent. "He plunged into research eagerly, going long distances to find severe cases of fever, gathering deadly virus, inoculating agile and vicious monkeys, putting them into cages to be bitten by mosquitoes, confining these infected insects. All these dangerous things he did with the enthusiasm and ardor of a true sportsman. . . . But it was not to come to him. Suddenly, on September 15, Adrian Stokes fell ill. He was taken to the hospital at Lagos. The symptoms were those of yellow fever. He knew he had the disease and thought first of his research. He insisted that specimens of his blood be taken and that mosquitoes be allowed to bite him. At first there was some hope that he might rally, but it was not to be. On the fourth day he died from a typical attack of the disease whose secrets he had so bravely sought. He was buried in the English Cemetery at Lagos."

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And now comes Hideyo Noguchi of the Rockefeller Institute for Medical Research, for many years, because of his notable researches so well known in medicine and science, who likewise as a member of a commission to study African yellow fever, has fallen a victim to that disease. The press dispatches gave but meager accounts of his death at Accra, West Africa. "Recently he wrote to New York friends that he had been stricken with African yellow fever and had been in an African hospital from December 28, 1927, to January 9, last. Doctor Noguchi said his own was the first case of the particular disease to come under observation. From his bed he had directed the inoculation of a monkey with some of his own infected blood. The animal died twelve days later. Additional experimentation, his letter stated, disclosed the micro-organism responsible for the disease."

\* \* \*

The world at large may well be grateful that from time to time it produces men such as these and such as those who have been associated with them. The altruistic efforts of such medical colleagues to make this earthly planet a safer and better place as a habitation for man are too often paid for in a fearful health or even life price.

The lay world may justly give expression to its verbal and written appreciation for services so unselfish and noble, and before the deeds of such medical martyrs are forgotten, may well ask itself what material evidence it could bring into being, to commemorate the work and sacrifice of such outstanding examples of the human race.

In the hearts of members of the medical profession, is gratitude that men of such altruistic and heroic build belong to this guild of the healing art. It is an inspiration to every true physician to carry on, no matter how humbly, in emulation of this spirit to serve, and willingness to pay the sacrifice, to the end that our world may be made better and safer for all its inhabitants in the days to come.



### THE SALE PRICE OF A DOCTOR'S SERVICES

At the recent Sacramento annual session of the California Medical Association, one of the addresses was entitled "The Cost of Medical Care." The caption of these comments may be said to be one phase on that subject. The address was made by Ray Lyman Wilbur, M. D., president of Stanford University and is printed in this issue of CALIFORNIA AND WESTERN MEDICINE. Members of the California Medical Association are urged to read this paper, and also his "Outline of Studies," which will be found in this month's Miscellaneous Department of the journal.

Doctor Wilbur very properly called attention to the need of physicians taking an active part in any survey that might be made on the cost of medical care; since nonparticipation would probably permit the investigation to fall under the supervision and influence of nonmedical persons, less able than physicians to render efficient service to all parties concerned.

Doctor Wilbur pointedly indicated some of the weaknesses in the present methods of handling the business phases of the professional work of physicians and surgeons, and asked if, in this modern era of which we are a part, seemingly all other large businesses keep a constant check on past, present and possible future methods of development—why the medical profession was presumably so indifferent to its own developmental interests; both in relation to its own members, and to the hundreds of thousands of lay citizens who are served by doctors.

He also very rightly placed emphasis upon preserving the personal relationship between the patient and physician as a necessary element for professional progress, initiative and efficiency, and as being a factor, which no system of so-called socialized or state medicine should be permitted to nullify.

Thoughts as pungent as the references just made, also face one when his "Outline of Studies" is read. Therein will be found a large number of very pertinent queries, to which satisfactory and accurate answer cannot be made by even the most learned or versatile among us. That outline is also worthy of careful perusal; and its length may be taken as an expression of the bigness of the problem and work which has been undertaken by this committee which is to investigate the cost of medical care.

\* \* \*

In one portion of his address, Doctor Wilbur asked the question—"What other business does free work as a part of its regular program?"

As indicating to what ends such free professional work may lead, may be cited an experience that has come to our attention in the last week.

The place is the county of Los Angeles, one of the units of government of the state of California. That county maintains a hospital of some 1200 beds for indigent sick and injured citizens. The more than one hundred members of the Los Angeles County Medical Association who are on the attending staff of that institution give

annually professional services of a money value, when gauged on a modest standard, of more than five hundred thousand dollars a year! These doctor citizens of Los Angeles, who year in and year out, so generously give their services to the poor of Los Angeles, are practically the only servant citizens of Los Angeles County who work without pay.

With a knowledge of the bigness of the gratuitous professional services which are so generously given by these doctors, one would be tempted to think that the rich county of Los Angeles would not make an effort to evade the obligations which it bears with the state as a whole, with other counties, with cities and with citizens, when the California industrial accident law comes into play in regard to its own injured county employees.

\* \* \*

The case which came to our attention was as follows: A county employee was injured, went to his former physician, received treatment and went on to good recovery. The statement for services was sent to the county. The auditor sent a letter stating that "the county of Los Angeles cannot be responsible for the payment of this bill" because the injured county employee had been instructed to secure "free medical treatment at the Los Angeles General Hospital."

This means that the board of supervisors and other officers of the county of Los Angeles who are concerned with matters of this kind, presumably hold to the opinion that the county is exempt from paying the fees laid down by the California Industrial Accident Commission for the care of injured employees; and expect the attending staff physicians and surgeons to give gratuitous professional service not only to indigent citizens of Los Angeles county, but to one of the richest counties in the United States!

\* \* \*

This example is mentioned in its relation to Doctor Wilbur's address, to show how lay citizens and officials fail to appreciate the significance of the gratuitous professional service of physicians and surgeons. Of course, we have ourselves largely to blame for much of this; in that we long ago should have so educated these lay fellow citizens and officials as to what were the principles herein involved, and what were our individual and joint professional rights, so that these lay officials and citizens would not have had such distorted notions as to where our gratuitous professional services begin and end.

It may be added that this particular instance, which is only one of many that has occurred in Los Angeles and other counties, has been called to the attention of the California Industrial Accident Commission. The ruling thereon, whatever it be, may serve as a basis for future comment on this subject.

In the meantime every member of the California Medical Association who wishes to keep in touch with those current events in which the interests of his profession and himself are at stake, may well take the time to read the papers by Dr. Ray Lyman Wilbur, which are printed in this issue.



# MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

## Metabolism

**The Status of Lipoid Nephrosis as a Clinical Entity**—Since Fr. Muller<sup>1</sup> in 1905 first used the term “nephrosis” there has been an attempt on the part of clinicians and pathologists to separate from the main body of the nephropathies a peculiar condition which numerous observers have designated “lipoid nephrosis.” Munk, in 1913, reported several cases of primary degenerative nephritis characterized by their luetic etiology and the presence in the urine of double refractive lipoids. In 1914 Volhard and Fahr,<sup>2</sup> in their classical monograph on Bright’s disease, adopted the term nephrosis for the degenerative affections involving the tubules, in contradistinction to inflammatory and arteriosclerotic parenchymal lesions of the kidney. The clinical conception of lipoid nephrosis is that of a disease characterized by its chronic course, edema, oliguria, and marked albuminuria, and by the absence of hypertension, cardiac hypertrophy, and renal insufficiency. The pathologic conception includes all forms of tubular degeneration, necrosis of the tubular epithelium and amyloid kidney. The classical clinical features of nephrosis, in which edema is an obligatory symptom, are only to be found in lipoid nephrosis, which may occur alone or in combination with diffuse glomerulonephritis. Investigations on the blood of such cases have revealed changes in the lipoids and protein, which are of considerable importance and which will be outlined presently.

In 1922 Fahr<sup>3</sup> presented his pathologic findings in the study of nine cases of lipoid nephrosis and called attention to the following points pertaining to the renal lesions. Macroscopically the kidney in this disease is enlarged, the surface smooth, and the capsule strips easily. When cut the cortex is seen to be wider than normal, the color of the cortex is gray or yellow stippled with gray, and contrasts sharply with the brown color of the medulla. Microscopically, characteristic changes are found in the cells of the tubules. The cells of the proximal convoluted tubules show fatty degeneration. The fat in the cells is partly neutral fat, but the greater part consists of double refractive lipoids. No changes are found in the collecting tubules. The glomeruli do not show any changes in the early stages, but later changes in the glomeruli of a degenerative character are noted. The interstitial tissue is edematous and contains some lipid deposits, whereas the renal arteries show nothing remarkable.

The etiology of this type of nephropathy remains comparatively obscure. Its occurrence in pure form is not frequent, but is more common

in children than adults. Schlayer found six pure cases among three hundred nephritics. As mentioned above, Munk has laid stress on syphilis as an etiologic factor, whereas some cases arise in the course of pregnancy. More recently Claussen<sup>4</sup> presents evidence that infection of the paranasal sinuses may play an important etiologic rôle. He further states “the striking and permanent relief which followed in every instance in which a definite improvement in the nasal sinus infection could be attained, and the absence of such relief otherwise, lend strong support to the thesis that nasal sinusitis is an important factor in the causation of parenchymatous nephritis.” It will be noted he adheres to the old term “parenchymatous nephritis”; however, in the introduction he states that for the cases under consideration the term nephrosis has been used by Epstein. It is noteworthy that the organism most frequently obtained from the sinuses at operation in Claussen’s series of eleven cases is *Staphylococcus aureus* or *Staphylococcus albus*.

The clinical features of the disease are of great significance, and it is principally upon them that the claims for this condition as a clinical entity must rest. The large amount of albumin in the urine is one of the main symptoms, with an excess of albumin to globulin. The urinary sediment shows hyalin and granular casts, leukocytes and epithelial cells. Lipoids are found in the epithelial cells and in the casts. Hematuria does not occur. Edema is the second outstanding symptom, is usually marked early in the disease, frequently involves the serous cavities, and it may produce a diarrhea by its presence in the gastrointestinal tract. A striking feature is the low protein content of the edema fluid. Cardiac hypertrophy and increase of the blood pressure are conspicuous by their absence. As alluded to above, the blood shows significant changes in its lipid and protein content. The milky appearance of the serum in this type of nephropathy has been observed by investigators since the time of Bright. This appearance is due to the high content of lipid. According to Bloor the average cholesterol of the normal blood is 0.21 per cent, whereas numerous investigators have found cholesterol values several times this amount in lipoid nephrosis. The changes in the protein of the blood consist in a reduction in the total protein content of the blood serum, a reduction in the albumin fraction, and an increase in the percentage of globulin in the total protein. To Epstein, in this country, credit must be given for being among the first to demonstrate these alterations. His studies of the whole subject of the lipoid nephroses go back to

1912, and include valuable contributions both on the clinical and experimental sides. The chlorids of the blood are not increased nor are the non-protein nitrogen, urea, uric acid, or creatinin. The formed elements of the blood show little change, though a moderate secondary anemia is usually present. Tests of renal function do not show impairment because there is no obstruction of blood flow in the glomeruli. Changes in the eye-grounds are also lacking. Epstein and Lande found the basal metabolism to be below normal in some instances.

The above, in a brief way, summarizes the salient clinical features of lipoid nephrosis in its uncomplicated form. It must not, however, be overlooked that this condition is prone to be complicated, especially in its later stages, by glomerulonephritis. Under these circumstances much of the above clinical picture is modified. It appears to me, nevertheless, that the features presented are sufficiently definite and unique for the justification of regarding lipoid nephrosis as a true clinical entity. From the strictly pathologic standpoint, more uncertainty exists, but this is notorious in all efforts to correlate the clinical and pathologic findings in the nephropathies.

The last word pertaining to the underlying pathogenesis of lipoid nephrosis has not been said. Many clinicians have been impressed, however, with the views propounded by Epstein,<sup>5</sup> which are, in brief, that we are dealing with a general metabolic disorder characterized by a perversion in the protein metabolism, possibly comparable in certain respects to the perversion of carbohydrate metabolism in diabetes mellitus. On the other hand, Claussen<sup>6</sup> has demonstrated the presence in the blood and urine of nephrotic patients, of a substance having a marked physiochemical effect and capable of altering the permeability of membranes. This substance disappears from the blood and urine coincident with a clearing up of sinus infection and the subsequent disappearance of edema. He has also demonstrated in a series of nephrosis cases in children that the serum tension of the blood is diminished. These observations support the hypothesis that the disease affects the whole body, not merely the kidney, and one of its important consequences is a decreased resistance to infection of all sorts.

E. S. DU BRAY, San Francisco.

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#### Orthopedics

**Treatment of Osteomyelitis**—The difficulty attendant upon the surgery of osteomyelitis; and the grave prognosis, both as regards life and permanent disability, makes any advance in the

methods of treatment one of widespread surgical interest. The articles recently published by Dr. W. H. Orr deserve a thorough study.

In the journals of *Surgery and Obstetrics* (October 27) and of *Bone and Joint Surgery* of October 27, he outlines in detail the reasoning from which he derived his conclusion, that a rather radical change in treatment in osteomyelitis is justified. To him it seemed that attention was focused wholly on the antiseptic treatment of this disease and that certain fundamentals, such as maintaining position and rest to the injured and infected parts, were as a whole neglected. Most wound complications, he felt, were due to failure to immobilize the inflamed parts, and to secondary infection.

Briefly, the technique worked out by him over a period of about ten years is as follows:

1. Make a fairly large exposure of the infected bone area.
2. Remove all infected bone and saucerize the cavity.
3. Clean out the infected area but be gentle and endeavor not to break down nature's already developed defenses.
4. Wipe out with 10 per cent iodine and follow with 95 per cent alcohol.
5. Pack entire wound wide open, not too tightly, with sterile petrolatum pack, and dress with dry sterile bandages.
6. In chronic cases perform any reasonable manipulation for correction of deformity or position.
7. Apply fixation splint or, preferably, a plaster cast, securing complete immobilization.
8. Do not dress wound at all, or very infrequently, for ten days to four weeks unless evidences of retained sepsis develop.

The results of such treatment were that wounds healed by granulation from the bottom of the wound outwardly. The convalescence was shortened and there was diminished disability. The incidental advantages of this method were many: Infrequent dressings reduced suffering and, therefore, improved the general condition. It allowed all such to be made under direct observation of the surgeon. The savings in labor and materials were no small items.

The author presented a series of forty-seven consecutive cases. Six illustrative cases were given in detail. The chronic and acute cases were about equal in number. There were no deaths. The percentage of cures speaks for itself as regards the value of the methods advocated.

My experience, while necessarily limited, being used for less than a year, has been gratifying. The surgical profession as a whole, and orthopedic surgeons in particular will, I feel, approach the problem of osteomyelitis with renewed enthusiasm when the value of these contributions by Orr is realized.

H. W. SPIERS, Los Angeles.



## Bacteriology

**Specificity of Scarlet Fever Streptococci—**A question of major importance in the hygienic control of any infectious disease is the specificity or nonspecificity of the micro-organism causing that disease. If the micro-organism is highly specific, found only in association with this one disease and in occasional immune carriers, its hygienic control is comparatively simple. If, however, identical micro-organisms are found in other infectious processes, of widely different clinical manifestations, the hygienic control is difficult.

An important micro-organism whose specificity has been under intensive investigation during recent years is the streptococcus isolated from scarlet fever. This streptococcus cannot be differentiated from certain nonscarlatinal streptococci by its morphological or cultural characteristics, so that the question of its specificity has narrowed down to the specificity of its toxin, whose absorption from the throat is the apparent cause of the characteristic scarlatinal rash.

One of the latest contributions to this question is by Zlatogoroff and Derkatch of the Bacteriological Institute, Kharkov, Ukrania.<sup>1</sup> These investigators compared toxins produced by American and European strains of scarlatinal streptococci with toxins produced by streptococci isolated from cases of osteomyelitis, peritonitis, septicemia, puerperal infection, and other suppurative processes. They found (a) that streptococci isolated from such nonscarlatinal diseases produce toxic substances giving skin reactions practically identical with the reactions produced by true scarlatinal toxin, and (b) that animals immunized against these other streptococci give antisera practically identical with true scarlatinal antitoxin. They conclude, "Neither the toxin production nor the Schultz-Charlton test (blanching of skin rash with antitoxin) enable us to confirm the conception of the specificity of scarlet fever streptococci."

W. H. MANWARING, Stanford University.

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## Urology

**Bladder Involvement in Cord Lesions—**The occurrence of bladder involvement in disease of the central nervous system is a phase of medicine of such magnitude that physicians should be keenly alert to it. Urinary retention (or, urgency, the minor manifestation) is frequently the first symptom of a spinal cord lesion, especially of those situated above the conus.<sup>1</sup> If the physician will recognize this fact, it will lead to an early diagnosis of a cord condition which would otherwise run its course until destruction of nerve tissue has become so extensive that the prognosis is hopeless.

The central nerve lesions which may cause bladder disturbances are as follows:

Tabes; fracture of spine with cord injuries; myelitis; alcoholic neuritis; hemiplegia; syringomyelia; multiple sclerosis; postdiphtheritic neu-

ritis; cord tumors; hematomyelia; pernicious anemia<sup>2</sup>; acute poliomyelitis<sup>3,4</sup>; congenital spinal cord lesions such as spina bifida<sup>5,6</sup>; meningitis of any type.<sup>7</sup>

Caulk<sup>8</sup> has reported five hundred cases of central nervous disease showing bladder symptoms. In 46 per cent of his series, bladder symptoms were the first manifestation of the disease. These symptoms were: frequency; pain, burning and urgency; incontinence; obstruction; hematuria; and uremia. Eighty per cent of these cases complained also of disturbed sexual powers. It is a curious fact that some cases will have a complete urinary retention, some a complete incontinence of urine, others a retention incontinence, and still others a paradoxical incontinence or a complete unconscious emptying of the bladder at certain intervals due to a reflex action. All these various conditions have been found in the same central nerve lesion. The pathologic physiology of these phenomena is not entirely understood<sup>1</sup> although there are various theories to explain it.<sup>9</sup>

The cystoscopic picture of the "cord bladder" is characteristic. There are trabeculae throughout the fundus of the bladder; the interureteric bar is lifted and thin; the trigone is elevated; and there is relaxation and guttering of the posterior urethra.<sup>8</sup>

Local bladder treatment is important, consisting of frequent catheterization and irrigation in cases of retention or of those having a residual urine, in order to keep down infection and to prevent back pressure on the kidneys.<sup>10</sup> Electrical treatments, galvanic current, and so on, to keep the bladder muscle in as tonic a condition as possible have been tried with varying degrees of success. When the underlying cause in the central nervous system is luetic the administration of antiluetic treatment is of course given. The treatment in most cases is not curative; but if recognized early, much can be done to relieve suffering and to prolong life.

ROGER W. BARNES, Los Angeles.

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### Syphilology

**Blood Wassermann**—The importance credited to the blood Wassermann reaction in the diagnosis of syphilis is very greatly overestimated by the laity, and also by many physicians. It is very common to hear, "My doctor says this cannot be syphilis because my blood is negative," when we are dealing with an obviously syphilitic lesion, which furthermore clears up under anti-syphilitic treatment. The blood Wassermann may be said to be uniformly positive in the early secondary stage of syphilis, in paresis and in congenital syphilis from the second month to the end of the second year. In all other stages the chances are about even; the test will be negative even in the presence of active symptoms.

The following statistics for negative Wassermann tests may be found in the literature: In cardiovascular syphilis Stokes reports 40 per cent; Elliott, 40 per cent; Reid, 17 per cent in fifty-four necropsies; Cumner and Dexter, 25 per cent in thirty-six cases; Longcope, 26.5 per cent negative in forty-seven cases. In gastric syphilis, we find H Schlesinger saying, "A negative Wassermann is very frequent in syphilis of the inner organs." Many authors, as Pick, Eisenklam, Warthim, Neugebauer, Holler, etc., have reported cases with negative reactions. Frequently the diagnosis of gastric syphilis is only apparent after a therapeutic test. In general neurosyphilis Stokes says 40 per cent show a negative blood Wassermann; the same figure is given for tabes after the first decade.

From this one can easily see why the experienced syphilologist places very little importance on a negative blood Wassermann in the diagnosis of syphilis.

MERRILL W. HOLLINGSWORTH,  
Los Angeles.

### Radiology

**The Uses of Lipiodol in Roentgenographic Diagnosis**—Until recent years the opaque substances in common use in x-ray laboratories were the barium and bismuth salts in gastrointestinal examinations, and the iodids and bromids in urological diagnosis. The use of lipiodol for roentgenological diagnosis dates back only to 1921. In that year Sicard and Forestier reported on its use as a means of localizing spinal cord tumors and other obstructions in the spinal canal.

Lipiodol is a vegetable oil containing 40 per cent iodine content by weight and is very opaque to the x-rays, due to the high atomic weight of the iodine. It had previously been used therapeutically as a form of iodine medication, being given in the form of intramuscular injections. Forestier and Sicard accidentally noted that roentgenograms made several weeks later showed opaque spots

corresponding to the site of the injection. This finding, together with the known harmlessness of the substance, suggested its use as a means of making the subdural and epidural spaces visible in a roentgenogram.

The use of lipiodol as an aid to roentgenological diagnosis was soon extended from the spinal canal to other regions of the body. Forestier in 1922 devised a suitable technique for making the bronchial tubes roentgenologically visible after intratracheal or intrabronchial injections, although its use for this purpose was not generally adopted until 1924 and 1925. Pritchard, Grady, Archibald, and many others have contributed to our knowledge of the technique of administration and the interpretation of the x-ray findings after its administration.

The method is of especial value in depicting, localizing, and outlining all the bronchial or pulmonary cavities which communicate with the bronchial tree. Small bronchiectatic cavities formerly not seen in the roentgenogram, with this method can be plainly visualized even in areas difficult to examine, such as the retrocardiac region.

Abscesses of the lung are very difficult to render visible at the beginning of their development, but later their detection is easy, especially with the bronchoscope. Besides these the utility of lipiodol should be mentioned in such conditions as occlusion of a bronchus, in the localization of certain non-opaque foreign bodies, of bronchial deviations, bronchopulmonary fistulas, and tumors primary in the bronchus. It is of little aid in diagnosing diseases of the parenchyma of the lung.

Lipiodol has been used with success in the exploration of fistulas and draining sinuses from such delicate tissues as the liver, kidney, and lungs, since it produces no irritation. Furthermore, it is preferable to bismuth paste as it does not occlude drainage.

Intra-arterial injection has resulted in localization of blood vessel obstructions caused by thrombosis or embolism. In the eye, nose, and throat field lipiodol has been used in the examination of the lachrymal ducts and the nasal accessory sinuses.

In the urological field pyelograms and cystograms have been made using lipiodol as the opaque media, although its use is not at all common. Heuser in 1925 was the first to report its use in the field of gynecologic diagnosis. Newell and Jarcho have found the procedure to be of diagnostic value in cases of sterility in which the tubes are obstructed; in such cases it enables one to determine the character and location of the obstruction and whether or not the case is suitable for operation.

When several masses are palpated within the pelvis, the method clearly differentiates the uterus from the other masses. One can also determine whether a pelvic tumor originates from the uterus or ovary, and whether the uterine cavity is encroached on by any tumor masses. Finally chronic appendicitis, right-sided salpingitis, can at times be distinguished from when this method is used.

The chief objection to the use of lipiodol is probably that of its relative high cost, which is



almost prohibitive to free clinics and dispensaries. A number of other substitutes for lipiodol have appeared on the market, but apparently they are not so efficacious nor so harmless.

KENNETH S. DAVIS, Los Angeles.

### Radiology

**The Treatment of Carcinoma of the Uterus**—For many years there has been a sharp controversy between surgeon and radiologist as to the relative values of surgery and radiation in the treatment of uterine carcinoma. Despite the fact that radiation therapy is really only fifteen years old, reports emanating from various gynecologic clinics in this country and abroad seem to show that radiation gives results which are on a par with surgery. With a view of clarifying the situation, Heyman,<sup>1</sup> an associate of Forssell, presented a statistical survey of surgical and radiological results, before the sixteenth meeting of the Scandinavian Surgical Society at Gothenburg in June of last year. In 1920 the gynecologists of Sweden were so favorably impressed with radiation therapy that they decided to turn over all cases of cervical carcinoma, operable as well as inoperable, to Radium Hemmet for treatment. The report, then, is a compilation of results obtained from this institution, and is divided into sections on cervical carcinoma and fundus carcinoma.

In 5806 cases of carcinoma of the cervix, collected from the world literature, the absolute cures at the end of five years were 20.2 per cent, and as 43 per cent of this number were operable, the relative curability was 35.6 per cent. The primary mortality was 17.2 per cent. A collection of radiological statistics from seventeen sources showed an absolute curability of 16.3 per cent at the end of five years; when the operable and border-line cases were considered, there was a relative curability of 34.9 per cent. From his own material at Radium Hemmet there was an absolute curability of 20.7 per cent. When he took into consideration only the operable cases, which numbered forty-three cases, 62 per cent were living at the end of five years. This is such a high figure that he says it must be accepted with caution, but from it he makes the assertion that radiation as practiced at the Radium Hemmet is superior to surgery in cervical carcinoma.

Heyman likewise analyzed the literature on the operative results in cancer of the fundus. He found these to be 42.8 per cent for the absolute, and 58.8 per cent for the relative. This study showed that the oft-quoted statement that "eighty per cent of the fundus carcinomas that were operated on were cured" is based on a report of only ten cases. The radiological literature is very incomplete; in fact, there are no available statistics except from their own institution, so he reports on forty-six cases that have been under observation for the conventional five-year period. The absolute curability in these was 43.5 per cent, and

the relative curability in the operable class was 60 per cent.

The survey, as far as Radium Hemmet is concerned, shows that radiation is superior to surgery in both the cervical and fundus carcinomas. Anyone interested in cancer should read the original article. The technique of radical surgery of the pelvic organs has long been established and can hardly be improved upon; that of radiation, on the other hand, is in its infancy. Possibly as time goes on this may be so perfected that the ultimate results will be far better than they are today. Oftentimes one speculates as to the final outcome in a combination of surgical procedures with radiation. Stevens,<sup>2</sup> reporting on his results, combined electrocoagulation with radiation in eighty-two cases; 42.5 per cent of these were operable and 27 or 32.7 per cent were well at the end of five years.

The difficulty in comparing radiological with surgical material lies in the fact that the surgical reports are based on patients with a relatively high operability, while radiologic material shows so many more advanced cases that the operable cases are far in the minority. In other words, the initial material is essentially different and must be borne in mind while making comparisons. Different observers report on such a varied assortment of cases that one cannot help but feel that in some localities adequate lay education on cancer has brought patients to the clinic earlier than in others. Statistics at the best are dull and uninteresting, but in the final analysis the proper treatment must take into proper consideration a study of this kind.

ORVILLE N. MELAND, Los Angeles.

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Flat Foot—Statistics compiled from the draft during the recent World War have been often quoted, and have thrown much light upon remediable conditions in persons of the draft age in the United States and elsewhere.

This great emergency revealed the large number of men unfit for mental or physical strain, who were yet able to plod along doing their daily civilian tasks. The number of countries with a republican form of government has increased since the war. Government then, on the whole, is better for the average man since this calamity. If the health of the population of America improves along the lines indicated to be necessary by draft figures, another benefit from the war will be established. However, there is no assurance that this is occurring.

"Among the first million men to be mobilized during the World War, one rachitic deformity, flat foot, was found to be practically as frequent (one hundred and seventy per thousand) as all other diseases and deformities combined (one hundred and eighty per thousand)."

Recent statistics from colleges and naval recruiting stations indicate a prevalence of flat foot still in the population today. Examination of school children in Oregon showed that less than ten per cent were entirely free from it.—*Southern M. J.*

# STATE MEDICAL ASSOCIATIONS

## CALIFORNIA MEDICAL ASSOCIATION

WILLIAM H. KIGER.....President  
MORTON R. GIBBONS.....President-Elect  
EDWARD M. PALLETTE.....Vice-President  
EMMA W. POPE.....Secretary

### MINUTES OF THE HOUSE OF DELEGATES, FIFTY-SEVENTH ANNUAL SESSION OF THE CALIFORNIA MEDICAL ASSOCIATION

#### First Meeting

Held in Memorial Hall, Auditorium, Sacramento,  
Monday, April 30, 1928, at 8 p. m.

I. **Call to Order.**—The meeting was called to order  
by President Percy T. Phillips of Santa Cruz.

\* \* \*

II. **Roll Call.**—The secretary called the roll; one  
hundred and seven (107) officers, councilors, and dele-  
gates were seated, and the president declared a quorum  
present.

The president stated that it would be well to settle  
the matter of seating of delegates and alternates and  
ruled that an alternate shall sit during the meeting for  
which he is seated, but should the delegate answer the  
roll call at the next meeting, the alternate will have  
to give way to the delegate.

Doctor Vecki of San Francisco stated that he did  
not agree with the ruling. On motion of Victor Vecki,  
duly seconded, it was

Resolved, That the alternates who are seated as  
delegates shall remain as such for the entire session.

The president then called for a vote on the motion.  
Carried.

\* \* \*

III. **Report of the Secretary.**—Emma W. Pope,  
secretary, read the following report:

The secretary's report will be limited to the activi-  
ties of the office and merely touches upon points that  
are to receive elaboration in other reports, as in that  
of the Auditing Committee and of the Editors.

#### SURVEY OF STATE

A medical survey of the entire state shows that of  
the fifty-eight counties in California but twelve have  
neither medical associations of their own nor an affilia-  
tion with another county, as is the case in Lassen-  
Plumas, Yuba-Sutter, and Yolo-Colusa. Of the eighty-  
three physicians resident in these twelve nonaffiliated  
counties, twenty-two are nevertheless members of the  
state association through membership in adjoining  
counties, a rather remarkable showing when the  
topography of these counties is considered. Madera,  
Kings, Calaveras, Amador, Alpine, and Mariposa lie  
in the high Sierras; Modoc and Del Norte are sparsely  
settled counties at the extreme northern border of  
California; Trinity and Lake lie in mountainous dis-  
tricts quite isolated from the railroad; and Mono and  
Inyo are in the hot desert region of southeastern  
California. In Alpine County resides no physician;  
Trinity and Mono have but one each; and both  
Doctor Fields of Trinity and Dr. G. A. Kelly of Mono  
are members of the California state association. In  
the number of the other counties half or over half of  
the residents are members of the state association.  
However, one member of four physicians in Del  
Norte; none of eight located in Modoc and one of

eleven in Lake County reduce the percentage quickly.  
In these counties there is missionary work for coun-  
cilors of the California association, and for the dele-  
gates of the American Medical Association. Evidently  
medical contact through the journal and annual meet-  
ing compensates in part for the lack of personal con-  
tact to these isolated practitioners.

County secretaries of component county societies  
representing forty-eight counties have most efficiently  
sent in reports of monthly meetings and business re-  
ports to the office. All members of Glenn, Lassen-  
Plumas, Shasta, and Tuolumne counties were in good  
standing by March 1, and Lassen-Plumas was fully  
reported on the first day of January, 1928.

#### MEMBERSHIP

At the close of 1927 but 118 members were delin-  
quent out of a total membership of 4458. Sixty-two  
deaths, 14 resignations, 118 delinquencies reduced the  
total gained by the addition of 308 new members to  
a net increase of only 114. It is interesting to note  
that the net gain for 1927 was not equal to the aver-  
age of the previous decade. In the ten years since  
1917 the membership has increased 1937, an average  
of almost 200 yearly.

Over thirty-two hundred members of the California  
Medical Association were Fellows of the American  
Medical Association on November 1, 1927, more than  
three-fourths of the total membership.

#### FINANCIAL GROWTH

The auditor's report shows a gain of \$8,786.97 for  
1927, making the total cash assets of the Association,  
January 1, 1928, \$58,202.89 and the total surplus  
\$64,934.31. The report of the Auditing Committee will  
give a detailed account of income and expenditures.

#### PLACEMENT BUREAU

The Placement Bureau has located thirty physi-  
cians, one technician, and twenty-five medical stenog-  
raphers during 1927. This gratuitous service was in-  
augurated by the association for the benefit of its  
members and is deserving of whole-hearted support.  
The finest type of help is that which makes the re-  
cipient self-reliant and self-supporting. Assist this  
work by letting the state office find temporary sub-  
stitutes when your office is vacated by reason of sick-  
ness or vacation. Many a recent graduate owes his  
start to this worthy activity of the association.

An interesting sidelight of this service is the care  
that has constantly to be exercised to avoid listing  
calls that are sent in by lay medical organizations and  
health and hospital associations. These calls are  
usually camouflaged under the name of a doctor em-  
ployed by the organization. The frequency of these  
requests indicates either that health associations are  
not satisfied with the quality of the men they have in  
their employ or that they are unable to secure a suffi-  
cient number to carry on this work.

A loan service, such as is furnished by universities,  
to newly licensed members who are hard pressed  
financially during the nerve-racking lull that follows  
graduation might help many of our young men to  
resist affiliations that are later detrimental to their  
medical advancement. Such a loan service might be  
a practical aid in upholding medical ethics.

#### EXTENSION LECTURE SERVICE

From the reports of county secretaries published in  
1927, fifty-five lectures were given before county  
societies and judging by the secretary's reports, better



attendance, freer discussion and more unity of spirit are direct resultants of these better attended meetings.

The Extension Lecture Service to date has been a voluntary one. The secretary of the state association has endeavored each year to have titles of subjects changed and new lecturers added in order that county societies may be able to secure fresh topics and a diversity of lectures. It would seem worth while to have a scientific committee, possibly the Program Committee, rather than the secretary supervise this Extension Lecture Service.

#### STATE OFFICE

The secretary has only praise for the loyalty, efficiency and cheerful service of the office assistants.

Changes resultant from the union of the secretary's office with the editors' office have reduced the number of assistants to four and eliminated the special editorial rooms on the eighth floor. The work of the assistant to the editors has been carried on successfully by one of the office assistants. Her ability to grasp and successfully to carry on an entirely new line of work is deserving of commendation.

The editors' report will be presented by Doctor Kress, and will detail the office work in the publication of *CALIFORNIA AND WESTERN MEDICINE*.

The report of the secretary was referred to the Reference Committee.

\* \* \*

**IV. Report of the Council.**—Morton R. Gibbons of San Francisco, chairman of the Council, submitted the following report of the Council:

#### COUNCIL MEETINGS FROM APRIL, 1927 TO APRIL, 1928

The Council has held three regular meetings during the past year, the daily sessions during the annual meeting not included. In addition there was one special meeting in San Francisco for the consideration of the Constitution and By-Laws.

There have been in all seven meetings: Four held at the annual session, April 24, 25, 27, 28, at Los Angeles. Fall meeting, October 8, at Los Angeles. Spring meeting, January 20, San Francisco. Special meeting, March 24, San Francisco.

The average attendance at the Council meetings was 96 per cent of the membership of the Council.

In addition, the Executive Committee of the Council has held six meetings.

#### BEQUESTS

By the terms of the will of our late member, Dr. Morris Herzstein, the California Medical Association is to receive the income from a trust fund of \$20,000 for use in the suppression of quackery. Income from this bequest is not yet available. No plans have been prepared for its use.

#### FUNDS OF THE ASSOCIATION

The auditor's report will be read at this meeting. The report shows a healthy gain and a dignified sum at the disposal of the Association.

It is well that there be a substantial reserve. It should be borne in mind that no large sums may be expended, and no new policies entailing large expenditures may be inaugurated without the approval of the House of Delegates.

#### ANNUAL ASSESSMENT

The Council recommends that the annual assessment remain the same as at present, \$10.

#### INVESTMENT OF CALIFORNIA MEDICAL ASSOCIATION FUNDS

Inasmuch as high-class bonds pay little in excess of 4¼ per cent, the amount being paid in savings accounts, the Council has considered it wise to keep funds of the Association in savings banks. This plan affords the greatest security with little potential loss of income.

#### INCORPORATION OF THE CALIFORNIA MEDICAL ASSOCIATION

The California Medical Association has never been incorporated and therefore has never been in position to legally accept gifts or legacies. Our general counsel

has prepared a draft of articles of incorporation with the necessary enabling clauses which will be fully presented to the House of Delegates.

#### CONSTITUTION AND BY-LAWS

The following action was taken at the 1927 House of Delegates:

Whereas, the Special Committee on Revision of the Constitution and By-Laws as presented through its chairman on behalf of the committee, suggests amendments to the Constitution and By-Laws amounting to a complete revision thereof; and

Whereas, In a similar manner there have been submitted by the chairman of the committee, amendments prepared by the general counsel and by members of the House of Delegates and of the Association; and

Whereas, Such amendments include an enabling amendment to the Constitution whereby additional amendments to the Constitution may be introduced and acted upon at the fifty-seventh session if such enabling amendment is then adopted by the House of Delegates; now therefore be it

Resolved, That such Special Committee, in conjunction with the general counsel, and subject to the instructions and approval of the Council of the Association shall codify all proposed amendments of any nature whatsoever, and shall further prepare, subject to the approval of the Council, such proposed amendments as would seem necessary to permit this House of Delegates to take proper action upon matters that will come up for consideration and that the same be printed in a special report, available for use of the House of Delegates at the next meeting, copies having been sent at least thirty days prior to the annual session to every component county society in this Association.

In accordance with this resolution a committee of fifteen representing all parts of the state has worked diligently and prepared a set of Constitution and By-Laws and will report the results of its labors at this meeting of the House of Delegates tonight.

The Council wishes to emphasize this fact. Any member of the House of Delegates may offer amendments or changes to the proposed constitution and even offer a new constitution.

#### CARE OF THE MENTALLY ILL

During the past year the Committee of the Council on Handling the Insane has made a study of the whole situation and given particular attention to regulation of private hospitals.

An original draft of regulations proposed by the director of institutions was considered unsatisfactory by a majority of those physicians who give special attention to this work.

The Council reports that there is good reason to believe that the director of institutions and the director of social welfare will be guided in great measure by the opinion of the committee of the California Medical Association and that such regulations as are finally adopted will meet the approval of your committee.

#### INDUSTRIAL MEDICAL COMMITTEE

It is recognized that the tide toward various phases of state medicine is slowly gathering momentum. Whether the California Medical Association likes the prospect or not, it is essential that it prepare itself and accumulate all obtainable information on matters related to state medicine. The time may come when we shall be called upon either to oppose legislation or to participate in moulding legislation. If we are well prepared we can go a long way toward averting the hardship which, because of unpreparedness, our



profession has been forced involuntarily to endure in other places.

A new committee, called the Medical Survey Committee, has been formed. It consists of five members, with Dr. Gayle Moseley, chairman.

For the present the committee is to work in co-operation with the Committee on Industrial Medical Practice, in the industrial phase, and among other matters to find out the number of people being treated under the Workmen's Compensation Law, the number of employers arranging to care for their employees in illness or accident, and the reaction of the employees. Members of the Association are urged to give the committee their full coöperation.

The committee of fifteen, which has been in existence for several years, has, since making its report, found little to provoke its activities. With the commencement of this year a new régime in the Industrial Accident Commission sympathetic with scientific medicine has altered materially the aspect of this class of practice.

The private casualties companies reflected to a considerable extent the attitude toward our profession of the state fund.

The attitude of the state fund was until recently distinctly bad. Marked improvement has taken place. In San Francisco a panel of eight emergency surgeons, all qualified by experience and performance to do good work, and one of thirty or more specialists have been appointed. It is not the intent, however, to limit the work to members of this panel. Much latitude will be accorded when injured workmen become the patients of qualified practitioners not on the panel. It is planned to provide similar panels for other large communities. The same general policy will prevail through the state.

#### CLINICAL AND RESEARCH PRIZES

The Clinical Prize is awarded to Cyril B. Courville, College of Medical Evangelists, Loma Linda, for a paper entitled "A Study in the Pathological Physiology of Intracranial Neoplasms."

The Research Prize is awarded to W. H. Leake and Phoebus Berman of Los Angeles for a paper entitled "An Electrocardiographic Study of the Effect of Emetin on the Rabbit's Heart."

#### MEMBERSHIP

It may be a surprise to the members of the California Medical Association to hear that the proportion of members in the California Medical Association to licentiates in the state is less than in any other states except Oregon and Tennessee.

There are less than 50 per cent of the licensed practicing doctors of medicine affiliated with the Association.

Many state societies have more than 80 per cent in membership.

The efforts of the officers and council of your society cannot be of avail in gaining new members, without the personal contact and effort of the individual members. Further notice of plans to increase membership will be made known at a later date.

#### WOMAN'S AUXILIARY

The Council advocates the formation of a Woman's Auxiliary to the California Medical Association, upon the lines of similar auxiliaries now in existence in thirty other states.

The report of the Council was referred to the Reference Committee.

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**V. Report of the President.**—The following report was submitted by President Percy T. Phillips:

We have had the secretary's report precede the president's for the reason that one is very apt to be a duplication of the other, and it seems to me that a

president's report should not deal so much with the statistics of the preceding year as with those things that have occurred, that carried discussion and would prompt a recommendation from experience that may be of use to those who will succeed us in helping to administer the affairs of the Association.

The first thing that attracts my attention from the secretary's report is the fact that we have only a net increase in membership of 114 for the year 1927, whereas the average increase during the preceding ten years has been 200 per year. The difference in the increase is probably accounted for by the fact that there have been more deaths in the past year than in previous years, but nevertheless the Association is not making headway in acquiring the desirable membership that it should have in the state. This, more than ever, convinces me that a field secretary is practically a necessity. As I said a year ago at the Los Angeles meeting, there is not a fraternal or business association of any character whose activities are similar to ours whose interests are not promoted in this manner.

I have hope that in revising our Constitution and By-Laws we will provide a suitable assistant for the secretary, a doctor of medicine, whose experience and education are such as to fit him for this work.

The secretary's report reveals the fact that twelve counties have no organizations—that these twelve counties have eighty-three physicians within their limits; of these eighty-three, twenty-two are members in adjacent counties. A state association is for all qualified reputable physicians, and it is the duty of the Association to see that units are provided throughout the state to serve the membership most conveniently. Of course, of these twelve counties most of them have not sufficient members for an independent organization but some representative from the state association, logically the councilor from that district, should visit and confer with the physicians of these counties concerned, and determine which affiliation could be made with the adjoining counties that would be most profitable, providing these men do not want to undertake organizing their own county unit. This again is proper employment for a field secretary.

The fact that twenty-two of these physicians are members of our state association and the American Medical Association shows the interest that they have and a desire on their part to be more active in the Association.

It is certainly a credit to the profession in California as well as a source of satisfaction to know that 75 per cent of its membership are Fellows of the American Medical Association—perhaps a larger percentage than from any other state in the Union. That this may be increased, I would simply call your attention to the fact that a Fellowship in the American Medical Association including a year's subscription to the journal may be had for \$5.

We have anticipated that the time would come when a salary for the editorial work of CALIFORNIA AND WESTERN MEDICINE would be paid. That accounts for the fact that our net gain in finances for the year is less than in recent years.

Considering the emergency situation that had to be met when our editors assumed their duties, I wish to congratulate them and also the Association on the able manner in which the journal has been edited.

Just a word about the Placement Bureau which is being so ably conducted from the secretary's office. This is a success, and one of the most desirable activities in which the Association can engage. There is nothing that can be of greater benefit than helping the young physicians in profitably and pleasantly locating themselves. They are our future members and an interest in their welfare at this time assures their interest in the Association's welfare at a later date.

In this connection the desirability of a loan service from some source presents itself. Experience has shown that there are many young physicians who,



before they are located, are handicapped in selecting a location to their liking from the fact that they have no means and must take the first opportunity that presents itself to make a living. Doubtless a number of them have made undesirable affiliations.

In the matter of the Lecture Extension Service, I would say that the secretary's idea of this being directed by a committee has its merits. However, I feel that we must make our selection of those who are to furnish the addresses by their reputation, rather than by having them submit any addresses that they are prepared to make, because different occasions demand different discussions and they must decide what to say at the time. At some of the meetings of the county societies, the laity are present. At these meetings, of course, the speaker must address his audience in such a manner as to be instructive and entertaining both to the laity and the profession. For this reason I believe it is best handled from the secretary's office.

A source of great annoyance to the secretary's office has been the fact that papers read at the state association sessions and at county society meetings and presented for publication to *CALIFORNIA AND WESTERN MEDICINE* have been found to have been published previously in other journals. This of course should and does bar such papers from publication in *CALIFORNIA AND WESTERN MEDICINE*. This undoubtedly has been done thoughtlessly and without an understanding of the ethical point involved.

I wish to take this opportunity to thank all of the committees which have so ably functioned during the past year. There are two I will mention specifically: The Historical Committee should have the thanks of the Association for the time it has devoted and for the very valuable and entertaining material that it has compiled and published and that will be continued. The county societies, as one of their activities could very practically compile as much as possible of the medical history of their locality—this to be preserved in their archives as well as furnished to the Historical Committee for publication. Doctor Rooney has furnished a Placer County history that when published may well serve as a model for others.

The Committee on the Revision of the Constitution and By-Laws has done an immense amount of work, especially Dr. George H. Kress and our attorney, Hartley F. Peart.

I thank you all.

President Phillips then stated that the general counsel of the Association, Mr. Hartley F. Peart, was unable to attend the session on account of illness and that in his absence Mr. Charles V. Barfield, Mr. Peart's associate, would advise the Association in those matters upon which it desires legal advice.

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**VI. Appointment of the Reference Committee.**—The president announced that he had appointed as members of the Reference Committee, Oliver D. Hamlin of Oakland, chairman; Joseph M. King of Los Angeles, and J. W. Barnes of Stockton.

\* \* \*

**VII. Report of the Committee on Scientific Program.**—Dr. Emma W. Pope of San Francisco, chairman of the Committee on Scientific Program, read the following report:

A detailed report from the Scientific Program Committee is always uninteresting and to me detracts from the beauty of the program that has been prepared. We are enjoying a very excellent meeting, the product of the labor of many members and guests who have contributed their articles of scientific worth; of program officers who have selected speakers and arranged the section programs; of the members of the Arrangements Committee who have provided speakers from great distances to come to Sacramento to bring to you their various messages; and of the

Program Committee who have again conferred with section secretaries and together have eliminated a multitude of petty conflicts detrimental to the smooth running of the meeting.

But why elaborate on these labors of love any more than a hostess would regale her guests with her culinary problems? The feast of reason has been spread. If you enjoy and wax strong on the food provided, those who ministered have had their reward.

The report of the Committee on Scientific Program was referred to the Reference Committee.

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**VIII. Report of the Auditing Committee.**—At the request of Oliver D. Hamlin, chairman of the Auditing Committee, the secretary read excerpts from the report of the auditor of the Association's books and stated that the full audit was available for the inspection of any members.

The report of the Auditing Committee was referred to the Reference Committee.

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**IX. Report of the Editors.**—Dr. George H. Kress of Los Angeles, on behalf of the editors, presented the following report:

When death took from our midst our former editor, Dr. William Everett Musgrave, who had done so much to develop your official journal, *CALIFORNIA AND WESTERN MEDICINE*, the Council was obliged to provide new editorial supervision. In that emergency Dr. George H. Kress of Los Angeles and Dr. Emma W. Pope of San Francisco were appointed as co-editors to carry on the editorial work. In compliance with the by-laws of the California Medical Association, these editors submit herewith the following report for the last year:

*One, as Regards the General Typographical Form of California and Western Medicine.*—The present general form of your journal has been gradually developed, the Council in past years having considered and sanctioned the various recommendations for changes. No radical alterations in the general form of the publication were considered by the present editors, since the dignified size, stock and printing make-up of the journal commended themselves as being quite well adapted to the needs of the Association.

*Two, as Regards Other Typographical Alterations.*—After assuming their duties your present editors determined as rapidly as properly could be done, to institute certain changes which to their viewpoint seemed desirable. Among such items might be mentioned: Printing the full table of contents on the outside page of the front cover; regrouping all directory and semi-official announcements in compact form in the front section of the advertising pages; deleting all biographical sketches of contributors as footnote accessories; working out a definite make-up of contents which should be practically the same in character from month to month, and which would be found in relatively the same places in all issues of the journal; deciding on the kind and size of type to be used, and agreeing on those methods of make-up, arrangements of the same, as would make for the least eyestrain and confusion to the readers of the publication.

*Three, as Regards the Editorial Work Proper.*—The editors, for revision purposes, have divided the manuscripts and contributions between them, and they desire to express to contributing members their appreciation for the kindly spirit in which the suggestions of the editors have been accepted. Differences of viewpoint must necessarily exist on matters of general form and phraseology. The editors are charged with the duty of bringing out a publication which aims to serve certain definite scientific and organization needs, and they appreciate the coöperation of the contributors who have so generously aided them to



accomplish these ends with a minimum of misunderstanding. On points of policy the editors have not hesitated to ask the opinion and advice of the Executive Committee and Council of the Association, which has likewise been most kindly given.

We believe the subheads in the special articles, typographical spacing in the discussions, the elimination of black-face headings in fillers, and the reduction to a minimum of fillers in the body of the publication have all served to make the journal more easily readable and at the same time more pleasing to the eye and taste.

The editors are deeply sensible of the coöperation of the many members who have aided in making the pages of CALIFORNIA AND WESTERN MEDICINE more interesting by contributions of special articles, of discussions of the special articles, and of articles for the departments of Bedside Medicine and of Medicine Today.

In the editorial columns it has seemed desirable to stress matters of organization work and policy. This has been made more easily possible because the discussions of papers and the contributions to Medicine Today and Bedside Medicine are in themselves all in the nature of editorial articles on phases of the scientific work of members of our profession. In the last analysis, however, we must remember that we exist in good part as an organization not only for the advancement of our joint and individual scientific interests, but also for the protection of those scientific activities. Also, in the end, our economic interests must be watched, if individually and collectively, unhampered by financial worries, we are to move forward. Your journal is the means by which is created a solidarity of opinion on matters of this kind. In California, a state of unusually large geographical domain, and widely diverse interests, a medium of intercommunication is very essential to scientific and organization progress.

In this connection, county society secretaries are urged to contribute information concerning their county problems and interests to the department of the California Medical Association, so that the officers and members of other component county societies may profit through a consideration of the same, and be in a position to utilize desirable methods in the upbuilding of their own county units.

Referring to the manuscripts received and printed, the following figures are given: Of the 124 papers read at the last annual meeting but thirteen are now unpublished, and a number of these were not submitted until after January, 1928:

|                                                             |     |
|-------------------------------------------------------------|-----|
| Published in 1927.....                                      | 49  |
| Published in 1928.....                                      | 25  |
| Read and published elsewhere, declined or not sent in ..... | 37  |
| Remained unpublished .....                                  | 13  |
| Total .....                                                 | 124 |
| Articles published in 1927.....                             | 142 |
| Papers from 1925 meeting.....                               | 2   |
| Papers from 1926 meeting.....                               | 37  |
| Papers from 1927 meeting.....                               | 49  |
| Papers from Utah and Nevada .....                           | 10  |
| Papers read before other societies.....                     | 6   |
| Papers not read elsewhere.....                              | 17  |
| Case reports.....                                           | 21  |
| Total .....                                                 | 142 |
| We have at present on hand:                                 |     |
| Papers from the 1927 meeting.....                           | 13  |
| Read before county societies.....                           | 6   |
| Original papers (not read elsewhere).....                   | 14  |
| Read before Utah and Nevada.....                            | 5   |
| Medical history.....                                        | 1   |
| Case reports.....                                           | 7   |
| Clinical notes.....                                         | 3   |
| Total.....                                                  | 49  |

*Four, as Regards the Overhead Costs of the Journal.*—In contrast to the former costs these are not increased to the extent as on first thought might seem to be the case. The printing costs are set. Economies could be made in the kind of paper used, the size of the journal and its binding, and so on, but such economies would make for a cheaper-looking publication, and one that could not be filed or be bound so easily, and we believe that the members of the Association are practically a unit in not wishing printing economies at such a cost. Our printers, the James H. Barry Company, who have brought out our journal from the beginning, have our thanks for their continued efforts to bring off their presses a journal representative of the best in printing art.

With the other demands upon the late Doctor Musgrave's energy and time, it was necessary for him to have skilled clerical assistance and separate offices. The present editors have been able to absorb and allocate practically all of such work to themselves, and also to place the editorial desk in the general offices of the Association. As a result of these economies the sum of more than \$4000 yearly that was formerly spent for the above assistance is now no longer needed for such purposes.

The income of CALIFORNIA AND WESTERN MEDICINE comes largely from the advertisements. The editors recommended to the Council an increase of advertising rates, beginning with the first of the year, amounting to an advance of about 50 per cent over last year's rates. New advertising is being taken on that basis and as rapidly as old contracts expire these also will be subject to the new rates.

So that in a general way, while the journal costs somewhat more than formerly, it is seen that it is not a serious drain on the treasury, and as time goes on, in comparison with past costs, the difference should be even less.

*Five, in Conclusion.*—Members of the Association who are willing to discuss special articles or to contribute to the departments of Bedside Medicine, or Medicine Today, are cordially invited to send their names to the editors, so that the services of such members may be utilized in the special fields in which they are interested.

Suggestions for betterment of CALIFORNIA AND WESTERN MEDICINE are always welcome. Your present editors have had too much past experience in editorial relationships to be thin-skinned over kindly meant criticisms. Your editors desire your journal to be a fitting expression of the best scientific and organization work which so large and active a society as the California Medical Association can produce.

In the scope and nature of its contents, our journal should aim to be of real value to the majority of the Association members, not neglecting from time to time to represent all phases of the practice of medicine and surgery; and it should be gotten out in such form as to be attractive rather than unattractive, and so arranged and indexed, that a minimum of effort is demanded of readers in finding those portions of its columns in which they have particular interest.

As already stated, the editors wish to thank the members of the Association for the kindly coöperation which has been given during the past year. If CALIFORNIA AND WESTERN MEDICINE, as it has been brought out under their joint present editorial supervision commends itself to the members of the Association, then the editors, who have gotten real pleasure in their work on the journal, will have special cause to be grateful.

The report of the editors was referred to the Reference Committee.

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**X. Report of the General Counsel.**—The annual report of the Legal Department was presented by Mr.



Charles V. Barfield, and ordered filed in the records of the Association.

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#### XI. New and Unfinished Business:

1. Incorporation.—T. Henshaw Kelly of San Francisco explained the steps necessary to incorporate the California Medical Association and stated that a committee had been appointed to supervise the necessary amendments and resolutions to provide for the incorporation of the Association or such part thereof as might be necessary to receive and hold gifts, endowments or bequests of any kind. Doctor Kelly stated that the amendment covering incorporation might be acted upon entirely separate from the Constitution and By-Laws.

Doctor Kelly stated that it was necessary to pass the Enabling Act at this meeting, if incorporation was desired, which would provide that the House of Delegates can then amend the Constitution at a single meeting. Following the passage of the Enabling amendment, Doctor Kelly stated that he would introduce an amendment regarding Referendum, which should be passed on Wednesday night; and also a section providing for incorporation.

Doctor Kelly then read the following Enabling amendment:

Article 12. Amendments.—The House of Delegates at any annual meeting including the meeting at which this amendment is adopted may amend any article of this Constitution by a two-thirds vote of the delegates present and acting; provided that any amendment to the Constitution is submitted in writing and laid on the table for twenty-four hours previous to being considered and acted upon.

Doctor Kelly then moved for the adoption of an amendment to Article 12 of the present constitution covering amendments. Seconded by Victor Vecki.

The president then called for a standing vote: 52 ayes; 48 noes. Motion defeated. Two-thirds vote necessary for passage.

2. Constitution and By-Laws.—Doctor Kress stated that by instruction of the Council, the Special Committee had been requested to bring in a report on the Constitution and By-Laws embodying the revisions and covering all reports submitted on the Constitution and By-Laws.

Doctor Kress then stated that the committee would place before the House of Delegates the full report made by the general counsel; a printed form which is a codification of this mimeographed form and the report previously submitted by the Special Committee.

Doctor Kress then introduced two drafts.\*

It was stated that the members of the House of Delegates were privileged to bring in any amendments that might appear to them as desirable.

The report of the Special Committee on Constitution and By-Laws was referred to the Reference Committee.

3. Resolution No. 1—Illness of General Counsel.—John H. Graves of San Francisco presented the following resolution on the illness of the general counsel:

Resolved, That the delegates of the California Medical Association in convention assembled express their sincere sympathy for their general counsel, Mr. Hartley F. Peart during his present severe illness. Be it further

Resolved, That said House of Delegates convey to him our appreciation for and confidence in his many

efforts in our behalf in safeguarding the interests of the medical profession by sound legal advice.

Resolution No. 1, Illness of Mr. Peart, was referred to the Reference Committee.

4. Resolution No. 2—Redistricting of Association.—Mott H. Arnold of San Diego presented the following resolution on the redistricting of councilor districts:

Whereas, The present councilor districts do not contain an equal number of county societies or an equal number of members, and the inequality amounts to a vast discrepancy in the representation of the various districts in the Council; now therefore be it

Resolved, That the House of Delegates of the California Medical Association requests the Council to redistrict the state into councilor districts which will more equally represent the membership in the Council.

Resolution No. 2, Redistricting of Association, was referred to the Reference Committee.

5. Incorporation.—T. Henshaw Kelly of San Francisco stated that in order that incorporation may be proceeded with at the next annual meeting, he wished to present certain articles prepared by the general counsel of the Association.

Doctor Kelly then presented the following:

Amendment to Article 12 of the Constitution, amendments to read:

The House of Delegates at any annual meeting including the meeting at which this amendment is adopted may amend any article of this Constitution by a two-thirds vote of the delegates present and acting; provided that any amendment to the Constitution is submitted in writing and laid on the table for twenty-four hours previous to being considered and acted upon.

Amendment to Article 10 of the Constitution—Referendum, to read:

Article XI—Referendum.—Section 1. The House of Delegates at any session thereof at any regular or special meeting may by a two-thirds vote of the members present and acting, or the Council at any meeting thereof may by a two-thirds vote of all of its members, submit any question, matter or proposition to all the members of the Association by mail, and a majority of the votes cast by mail by members of the Association shall be final and bind and govern the Association upon the question, matter or proposition so submitted to the membership.

Sec. 2. The Council shall prescribe, fix and determine the form of the question, matter or proposition so referred to the members and the time within which such vote shall be cast. All votes must be in writing and mailed or delivered to the secretary's office. The canvass thereof shall be under the direction of the Council.

Sec. 3. The action of the House of Delegates shall be final and binding upon all members of the Association unless a referendum as herein provided is voted by the House of Delegates at the same meeting thereof at which the action was taken or the vote or resolution was had or adopted, or unless the Council by a two-thirds vote of all its members, shall within the period of thirty days after adjournment of such meeting of the House of Delegates vote to hold a referendum of the Association on such action, vote or resolution of the House of Delegates.

Add a new Article 13—Incorporation, reading:

Article XIII—Incorporation.—To aid in carrying out the objects of the Association, the House of Delegates at any session of any regular or special meeting thereof, may by a two-thirds vote of the members thereof present and acting, authorize, empower and direct the Council to cause the formation and organization of a nonprofit corporation under the laws of the state of California, without capital stock, with such incorporators, name, purposes, objects, principal place of business, term, number of directors and directors to serve for the first

\* The full text of the two drafts will be printed in the August, 1928 issue of California and Western Medicine.



year and until their successors are elected, and with such provisions regarding the voting power and property rights and interests of the members of the corporation and such further provisions in the Articles of Incorporation thereof, and with By-Laws and composed of such members representing this Association as the Council shall prescribe, fix and determine. The House of Delegates may at its option in connection with the granting and giving of such authority, power and direction to the Council, prescribe, fix and determine any or all of such matters pertaining to the said corporation, its Articles of Incorporation and any provision thereof, By-Laws and membership, and its action thereon shall bind the Council; and the House of Delegates at any session of any regular or special meeting thereof may by a two-thirds vote of the members thereof present and acting, authorize, empower and direct the Council to grant, assign, transfer, convey and deliver to the said corporation upon the formation thereof without any consideration therefor, any property, real or personal, of the Association, which authorization, power and direction may be given prior or subsequent to the formation and organization of said corporation.

Doctor Kelly then presented a resolution of the House of Delegates providing for said incorporation and also resolutions directing referendum, as follows:

House of Delegates—Resolution on Incorporation.—Whereas, The objects and purposes of this Association will be aided and furthered by the formation of a corporation; now therefore be it

Resolved, That the Council is hereby authorized, empowered, and directed to cause the formation and organization of a nonprofit corporation under the laws of California, without capital stock, the members whereof shall be active members of this Association, and councilors or constitutional officers thereof, with such incorporators, name, purposes, objects, principal place of business, term, number of directors, and directors to serve for the first year and until their successors are elected, and with such provisions regarding the voting power and property rights and interests of the members of the corporation and with such further provisions in the articles of incorporation thereof and with such by-laws as the Council shall prescribe, fix, and determine; and be it further

Resolved, That upon the formation of such corporation the Council is hereby authorized, empowered, and directed to grant, assign, transfer, convey, and deliver, or cause to be granted, assigned, transferred, conveyed, and delivered to the said corporation without any consideration therefor such property, real or personal, of the Association as the Council shall determine.

House of Delegates—Resolution Directing Referendum.—Whereas, The House of Delegates of the California Medical Association at the regular annual meeting session thereof duly noted, called, and held at Sacramento, Sacramento County, California, April 30 to May 4, 1928, did at a regular session (meeting) of said session (meeting) held on the ——— day of May, 1928, duly adopt and pass by the affirmative vote of two-thirds of the members thereof present and acting, a resolution in words and figures as follows, viz.:

Whereas, The objects and purposes of this Association will be aided and furthered by the formation of a corporation; now therefore be it

Resolved, That the Council is hereby authorized, empowered, and directed to cause the formation and organization of a nonprofit corporation under the laws of California, without capital stock, the members whereof shall be active members of this Association, and councilors or constitutional officers thereof, with such incorporators, name, purposes, objects, principal place of business, term, number of directors, and directors to serve for the first year and until their successors are elected, and with such provisions regarding the voting power and property rights and inter-

ests of the members of the corporation and with such further provisions in the articles of incorporation thereof and with such by-laws as the Council shall prescribe, fix, and determine, and be it further

Resolved, That upon the formation of such corporation the Council is hereby authorized, empowered, and directed to grant, assign, transfer, convey, and deliver, or cause to be granted, assigned, transferred, conveyed, and delivered to the said corporation without any consideration therefor such property, real or personal, of the Association as the Council shall determine; now therefore be it

Resolved, That the said resolution and the action of the House of Delegates in adopting and passing the same be submitted to the decision and referendum vote of all the active members of the Association by mail; and be it further

Resolved, That the Council be and it is hereby authorized, empowered, and directed to fix and determine the form in which said resolution and the action of the House of Delegates in passing and adopting the same shall be so referred by mail to the active members of this Association and the time within which such referendum vote shall be cast.

Doctor George H. Kress stated that the articles on amendment and referendum would be found in the draft submitted by him, and that those submitted by Doctor Kelly were an elaboration of the same.

All data submitted by Doctor Kelly were referred to the Reference Committee.

6. Resolution No. 3—Medical Service for Profit by Corporations.—Lyell C. Kinney of San Diego introduced the following resolution on medical service for profit furnished by corporations:

Whereas, Certain corporations in California are undertaking for profit to furnish medical service for a monthly premium; and

Whereas, This practice is essentially state medicine without the control or supervision by, or appeal to competent state authority; and

Whereas, Such practice is not limited to the requirements of social or economic necessity, being offered to the public without restriction; and

Whereas, Approximately two-thirds of the collected premium is retained by the corporations for sales, administration and profit and only approximately one-third is paid to the physicians for medical services rendered, and

Whereas, Such practice deprives the patient of the choice of physician and interferes with the relation between patient and physician by dictating the extent of the services rendered; and

Whereas, Such practice tends to the use of temporizing measures, incomplete diagnosis and inadequate treatment due to the fact that the service sold covers a limited class of diseases and only those arising during the life of the contract, while the majority of adult diseases are the expression of long-standing and often obscure pathology; therefore be it

Resolved, That the House of Delegates of the California Medical Association considers that the practice of corporations selling medical service for profit is a detriment to the best interests of the patient and the public; and further be it

Resolved, That employment by and practice for or with such corporations by members of the California Medical Association is not ethical.

Resolution No. 3 was referred to the Reference Committee.

7. Constitution and By-Laws.—Dr. George H. Kress introduced further data on the Constitution and By-Laws as printed in the August, 1927 issue of CALIFORNIA AND WESTERN MEDICINE, embodying all amend-



ments to the Constitution to that date, and special reports dated January 15, 1928, and May 2, 1928, as follows:

1. Four-column printed form.
2. As printed in *AUGUST CALIFORNIA AND WESTERN MEDICINE*, August, 1927.
3. Special Revision Committee report, dated January 15, 1928.
4. Special Revision Committee report, Dated May 2, 1928.

These data were referred to the Reference Committee.

8. Resolution No. 4—Dues.—Harry Spiro of San Francisco presented the following resolution on annual dues:

Resolved, That at any time the total membership in the California State Medical Society shall equal 75 per cent of the licensed doctors practicing in California the dues shall be reduced to 50 per cent of what is now paid.

Resolution No. 4—Dues, was referred to the Reference Committee.

9. Resolution No. 5—Herzstein Bequest.—On behalf of the Special Committee on resolution of appreciation of the Herzstein bequest, the secretary submitted the following:

Whereas, The late Morris J. Herzstein in his last will and testament expressed his great love and admiration for the medical profession, which characterized him in all his years of medical work, by leaving the sum of \$20,000, the income from which is to be made available for the Council of the California Medical Association to be used in the curbing and suppression of nonscientific arts of healing; now therefore be it

Resolved, That the House of Delegates authorize the acceptance of this bequest with a sense of deep appreciation and use it according to terms of the expressed wishes of the donor.

Resolution No. 5, Herzstein bequest, was referred to the Reference Committee.

10. Technical Specialties.—On behalf of the Special Committee on Technical Specialties, the secretary presented the following report of the committee:

The Special Committee on Technical Specialties and the Relationship of the California Medical Association thereto begs to submit the following tentative report:

1. We are agreed that it is in every way desirable that lay technicians, such as those who work in clinical laboratories, x-ray laboratories, physiotherapy groups, social service groups, etc., should have as cordial contact with the members of the medical profession as possible. It stands to reason that such pleasant contacts make for more efficient service to patients and give increased satisfaction to both the physician and the technical assistants, who carry out certain instructions of the physician.

We believe, therefore, that no means should be left unutilized that will acquaint members of these technical groups with the kindly attitude of the medical profession in regard to their associated work when it is properly done.

2. The particular problem before your Special Committee is to present some type of report to the Council and to the California Medical Association in the matter of official or semi-official relationship between the medical profession and these various technical groups in our state.

At the present time the California Medical Association is acting as a sponsor for one or two technical groups, which even have constitutions and by-laws

approved by your Council and which provide that no amendments thereto shall be made without the consent of the Council.

There are one or two other technical groups in the process of organization who desire a somewhat similar affiliation with the California Medical Association.

The problems for consideration before the California Medical Association are twofold in character, as follows:

(a) What shall be done in regard to the relationship which now exists between technical groups, like physiotherapists, who have a nominal relationship with the California Medical Association, and who meet at the same time and place with the Association at its annual meeting, and who have programs which have even been printed in the regular program announcement of the California Medical Association? The Council of the California Medical Association has decided that it would be good policy for the House of Delegates to consider whether or not official or semi-official relationship with the technical specialties should be considered and that at the annual meeting a request for formal action be made.

(b) The second item is the sponsoring of the organization of additional technical groups.

The answer of the Special Committee to this point is that we do not favor the policy that x-ray technicians or clinical laboratory technicians or other groups should be officially sponsored in their organizations.

Whatever aid is given should be given to such groups of technicians by individual members of the Association, acting as individuals and not in the name of the Association.

*Conclusions.*—It will be seen from the above that your Special Committee is of the opinion that while it might be desirable from an altruistic standpoint to have very close affiliation between physicians and technical assistants, that in practice the plan does not work out to the betterment of service to patients nor to the benefit of either the best medical or technical group organizations.

It is easy to conceive how technical groups could organize with the highest motives, but it is also easy to understand how under the influence of leaders not animated by the broadest visions, that such groups could wander far from their original purpose of organization, and really be a detriment, rather than a benefit to medical organization.

Your Special Committee submits this tentative report and will continue its investigations, but makes the above suggestions for the immediate consideration of the Council.

The Report of the Committee on Technical Specialties was referred to the Reference Committee.

11. Resolution No. 6—Nervous and Mental Cases in Private Hospitals.—Dr. George G. Hunter of Los Angeles presented the following resolution on the care of nervous and mental cases in California.

Whereas, There were 914,715 registered voters in southern California, and there are 935,264 registered in the rest of the state, the state made provision in southern California on the first of January of this year for 4123 patients in the state hospitals, and on that same date the state was maintaining in the balance of the state 9232 patients. This negligence of the state to provide for the care of the insane in southern California necessitated Los Angeles County to care for them at other sanitariums, and has cost the county of Los Angeles in the last year over \$100,000, and at no time has Los Angeles County been able to send to the state institutions for the insane more than 41 per cent of the cases brought before the Lunacy Commission of Los Angeles County.

If there had been three other institutions started at the same time the one at Norwalk was begun, and had been pushed to completion to the same degree as Norwalk, southern California would still have 311

less beds in the state hospitals than the upper part of the state.

This condition made it necessary to start a large number of institutions for the care of the insane, and these are all taxed \$50 a year for a license, and recently Mr. Earl Jensen, Director of Institutions, has introduced regulations which will put many of these institutions out of existence.

In these regulations he dictates the qualifications of the physicians who care for their patients in these private sanitariums; he also demands that the qualifications of the employees shall be passed upon by his department. This takes away the rights of the physician, which are his under the license received from the Board of Medical Examiners.

Mr. Jensen is an attorney and not a physician, and he has no practical knowledge of the care of the insane, and no knowledge of medicine.

Be It Resolved by the Los Angeles County Medical Society that we appeal to Governor Young to prevent the director of institutions from interfering with the rights of the medical profession in the care of patients in private hospitals.

Resolution No. 6, nervous and mental cases in private hospitals, was referred to the Reference Committee.

\* \* \*

**XII. Time of Annual Sessions.**—The president read the following resolution on the date of the 1929 annual meeting and stated that a rising vote of the House of Delegates would be taken on Wednesday.

Resolved, That the president be requested at the meeting of the House of Delegates tonight to advise that it is the opinion of the Council that the meeting for 1929 be set as the first week in October and that the president request a standing vote of the House of Delegates to ascertain if there is any difference of opinion on the matter; and that he advise that a poll is being taken in the sections also.

The chairman of the Council explained that the suggested change of date of meeting from the spring to the fall of the year had been suggested by members of the Association on account of conflict of the California Medical Association sessions with the American Medical Association and the larger number of special societies; and the difficulty in obtaining invited speakers.

\* \* \*

**XIII. Adjournment.**—There being no further business the House adjourned to meet at 8 p. m., Wednesday, May 2, 1928, at the same place.

## MINUTES OF THE HOUSE OF DELEGATES

### Second Meeting

Held in Memorial Hall, Auditorium, Sacramento, Wednesday, May 2, 1928, at 8 p. m.

**I. Call to Order.**—The meeting was called to order by the president, Percy T. Phillips of Santa Cruz.

**II. Roll Call.**—The secretary called the roll; one hundred and six (106) officers, councilors and delegates were seated, and the president declared a quorum present.

**III. Reading and Adoption of Minutes.**—Minutes of the first meeting of the House of Delegates held April 30, 1928, were read, and there being no objection, were approved.

**IV. Resignation of Delegate.**—The secretary read the following letter from Edward M. Palette of Los Angeles, submitting his resignation as delegate from the Los Angeles County Society.

"I herewith resign from the House of Delegates of

the California Medical Association, to be effective at once."

On motion duly made and seconded, the resignation of Edward M. Palette, was accepted.

**V. Resignation of Councilor.**—The secretary read the following letter from Morton R. Gibbons of San Francisco, submitting his resignation as councilor-at-large:

"I have the honor to request that you present to the 1928 House of Delegates, my resignation as councilor-at-large."

On motion of Kelly, duly seconded, the resignation of Morton R. Gibbons was accepted.

**VI. Place of 1929 Meeting.**—The Chair announced that the Council had unanimously selected Hotel Del Coronado, Coronado, as the place of the 1929 meeting and that the date would be set later.

**VII. Election of Officers.**—The chairman declared that the next order of business was the election of officers, and appointed as tellers, Henry S. Rogers of Petaluma; Thomas F. Madden of Fresno, and W. M. Gratiot of Monterey.

**1. President-Elect.**—The Chair announced that nominations were in order for president-elect. Morton R. Gibbons of San Francisco was nominated for president-elect by Oliver D. Hamlin of Oakland; such nomination being seconded by Elmer E. Kelly of Los Angeles.

Henry A. L. Ryfkogel of San Francisco moved that the nominations be closed; such motion being duly seconded, and the secretary instructed to cast the ballot. The secretary cast the ballot and the Chair declared Morton R. Gibbons elected president-elect for the year 1928-1929.

**2. Vice-President.**—The chairman announced that nominations were in order for vice-president. Edward M. Palette of Los Angeles was nominated for vice-president by Joseph M. King of Los Angeles; such nomination being seconded by Karl L. Schaupp of San Francisco.

W. H. Gilbert of Los Angeles moved that the nominations be closed; such motion being seconded by T. Henshaw Kelly of San Francisco, and the secretary instructed to cast the ballot. The secretary cast the ballot and the chairman declared Edward M. Palette elected vice-president for the ensuing year.

**VIII. Election of Councilors.**—The chairman announced that the next order of business was the election of councilors.

**1. Councilor for the Second District.**—William Duffield of Los Angeles was nominated by A. B. Cooke of Los Angeles, as councilor for the Second District, to succeed himself. The nomination was seconded by Charles L. Curtiss of Redlands and R. A. Cushman of Orange. W. H. Gilbert of Los Angeles moved that the nominations be closed; such motion being duly seconded and the secretary instructed to cast the ballot. The secretary cast the ballot and the Chair declared William Duffield elected councilor for the Second District for the ensuing three years.

**2. Councilor for the Fourth District.**—Fred R. DeLappe of Modesto was nominated by R. E. Maxwell of Modesto as councilor for the Fourth District, to succeed himself. The nomination was seconded by Walter B. Coffey of San Francisco. Joseph M. King of Los Angeles then moved that the nominations be closed; such motion being duly seconded and the secretary instructed to cast the ballot.

The secretary cast the ballot and the Chair declared Fred R. DeLappe elected councilor for the Fourth District for the ensuing three years.

**3. Councilor for the Eighth District.**—Junius B. Harris of Sacramento was nominated by T. Henshaw Kelly of San Francisco, as councilor for the Eighth District, to succeed himself; which motion was duly seconded. Oliver D. Hamlin of Oakland moved that



the nominations be closed; such motion being duly seconded and the secretary instructed to cast the ballot.

The secretary cast the ballot and the Chair declared Junius B. Harris elected councilor for the Eighth District for the ensuing three years.

4. Councilors-at-Large.—The chairman announced that nominations were in order for councilor-at-large to succeed Robert A. Peers of Colfax.

Robert A. Peers of Colfax was nominated by Joseph Catton of San Francisco, as councilor-at-large to succeed himself; which motion was seconded by Cyril E. Lewis of Auburn. Gayle G. Moseley of Redlands moved that the nominations be closed; such motion being duly seconded and the secretary instructed to cast the ballot.

The secretary cast the ballot and the Chair declared Robert A. Peers of Colfax elected councilor-at-large for the ensuing three years.

The chairman announced that nominations were in order for councilor-at-large to fill the unexpired term of Morton R. Gibbons, resigned.

T. Henshaw Kelly of San Francisco was nominated by Oliver D. Hamlin of Oakland, as councilor-at-large to succeed Morton R. Gibbons, which motion was duly seconded. Alexander Keenan moved that the nominations be closed; such motion being duly seconded and the secretary instructed to cast the ballot.

The secretary cast the ballot and the Chair declared T. Henshaw Kelly of San Francisco elected councilor-at-large to fill the unexpired term of Morton R. Gibbons, which term expires in 1930.

IX. **Program Committee.**—The chairman announced that the next order of business was the election of a member of the Program Committee for the term of four years.

Karl Schaupp of San Francisco was nominated as a member of the Program Committee by Joseph Catton of San Francisco, such motion being duly seconded.

W. H. Gilbert of Los Angeles moved that the nominations be closed; such motion being duly seconded and the secretary instructed to cast the ballot.

The secretary cast the ballot and the Chair declared Karl Schaupp of San Francisco elected a member of the Program Committee for a term of four years.

The chairman then announced that nominations were in order to fill the place of Jay Marion Read, whose term as a member of the Program Committee expires.

Jay Marion Read of San Francisco was nominated as a member of the Program Committee by Irving S. Ingber, to succeed himself; such nomination being duly seconded. T. Henshaw Kelly moved that the nominations be closed; which motion was duly seconded and the secretary instructed to cast the ballot.

The secretary cast the ballot and the Chair declared Jay Marion Read elected a member of the Program Committee for a term of four years.

X. **Delegates to the American Medical Association.** The chairman announced that the next order of business would be the election of delegates to the American Medical Association to fill the vacancies caused by the expiration of the terms of Victor Vecki and Percy T. Magan, which terms expire at the close of the 1928 American Medical Association House of Delegates meeting.

Victor Vecki of San Francisco was nominated as delegate to the American Medical Association by H. A. L. Ryfkogel of San Francisco; such nomination being seconded by Martha Welpton of San Diego. Ferdinand Stable of Redding moved that the nominations be closed; which motion was duly seconded and the secretary instructed to cast the ballot.

The secretary cast the ballot and the Chair declared Victor Vecki of San Francisco elected delegate to the

American Medical Association for the ensuing two sessions; that is, 1929 and 1930.

Percy T. Magan of Los Angeles was nominated as delegate to the American Medical Association by Conrad Sutner of Los Angeles; such nomination being seconded by Eugene Kilgore of San Francisco. Gayle G. Moseley of Redlands moved that the nominations be closed; such motion being duly seconded and the secretary instructed to cast the ballot.

The secretary cast the ballot and the Chair declared Percy T. Magan of Los Angeles elected delegate to the American Medical Association for the ensuing two sessions; that is, 1929 and 1930.

XI. **Alternates to the American Medical Association.**—The chairman announced that the next order of business would be the election of alternates to the American Medical Association to fill the vacancies caused by the expiration of the terms of W. E. Stevens and C. D. Lockwood, which terms expire at the close of the 1928 American Medical Association House of Delegates meeting.

W. E. Stevens of San Francisco was nominated as alternate to the American Medical Association for Victor Vecki of San Francisco, by Sol Hyman of San Francisco; such nomination being seconded by Victor Vecki of San Francisco. T. Henshaw Kelly of San Francisco moved that the nominations be closed; such motion being duly seconded and the secretary instructed to cast the ballot.

The secretary cast the ballot and the Chair declared W. E. Stevens of San Francisco elected as alternate to Victor Vecki for the ensuing two sessions of the American Medical Association; that is, 1929 and 1930.

Charles D. Lockwood of Pasadena was nominated as alternate to the American Medical Association for Percy T. Magan of Los Angeles by William Duffield of Los Angeles. T. Henshaw Kelly of San Francisco seconded the nomination and moved that the nominations be closed; which motion was duly seconded and the secretary instructed to cast the ballot.

The secretary cast the ballot and the Chair declared C. D. Lockwood of Pasadena elected alternate to Percy T. Magan for the ensuing two sessions of the American Medical Association; that is, 1929 and 1930.

XII. **Report of the Reference Committee.**—Oliver D. Hamlin, chairman of the Reference Committee, presented the following report:

1. Address of the President.—President Phillips' address on Narcotics touches a subject which is close to the hearts of both the laity and the medical profession, and throws light on a much misunderstood question.

The committee recommends the paper for the close study of all.

2. Address of the President-Elect.—The committee agrees with the sentiments expressed in the remarks of the president-elect and hopes that the policies will be followed out by the Association.

3. Report of the Secretary.—The report of the secretary deserves special commendation. There has been a notable lack of complaints regarding all functions of the office. The attention of the House of Delegates is invited to the economies effected, the smoothness of operation, and the efficient organization of the office.

The Placement Bureau is particularly notable and this function should be borne in mind by the Association members.

The excellent coöperation of the office staff indicates both the high class of the individual members



and the good spirit with which the secretary has worked.

4. Report of the Council.—The report of the Council gives the members of the Association an outline of the activities during the past year. Your committee wishes to report on the following special items.

(a) Annual Assessment.—The Council recommends that the annual assessment be set as at present, at \$10, and the Reference Committee so moves.

The motion of Oliver D. Hamlin, chairman of the Reference Committee was duly seconded, and the foregoing section of the report setting the annual dues at \$10 was adopted.

(b) Clinical and Research Prizes.—The papers submitted for Clinical and Research Prizes will be published in CALIFORNIA AND WESTERN MEDICINE and the Committee recommends that the awards of the Clinical and Research Prize Committee be approved.

On motion of Oliver D. Hamlin, duly seconded, the foregoing section of the report of the Reference Committee was unanimously adopted.

(c) Membership.—The report of the Council calls attention to the fact that less than 50 per cent of the regular physicians and surgeons in California are members of our Association. The Reference Committee recommends that the county societies, Council and officers use their best efforts to increase this membership during the coming year.

(d) Women's Auxiliary.—The Reference Committee approves the recommendation of the Council that a women's auxiliary be formulated in California as it exists in the majority of the states.

5. Committee on Scientific Program.—The Reference Committee commends the report of the Committee on Scientific Program and recommends its approval.

6. Report of the Auditing Committee.—The report of the Auditing Committee gives the status of accounts of the Association for the year 1927, and the Reference Committee moves for its approval.

Motion of Doctor Hamlin was duly seconded and unanimously carried.

7. Report of the Editors.—The report of the editors presents a concise review of the policies of CALIFORNIA AND WESTERN MEDICINE and shows that the editors have had the good of the journal at heart.

The Reference Committee commends the efforts of the past year, and recommends the approval of the report.

8. Report of the Legal Department.—The Reference Committee commends the report of the Legal Department, appreciates the interest expressed by the counsel in questions of the Association. A great deal of work has been done in matters of incorporation, constitution and by-laws, and county hospitals by the attorney.

9. Resolution No. 1—Illness of Mr. Peart.—The Reference Committee recommends the unanimous approval of the House of this resolution, and that the secretary be instructed to transmit a copy of the resolution to Mr. Peart.

On motion of Oliver D. Hamlin, duly seconded, the resolution on the illness of Mr. Peart was unanimously adopted by the House.

10. Resolution No. 2—Redistricting of Councilor Districts.—The Reference Committee suggests that the House refer the resolution on redistricting of councilor districts without recommendation to the Council.

On motion of Oliver D. Hamlin, duly seconded, the foregoing resolution on redistricting of councilor districts was referred to the Council.

11. Resolution No. 3—Medical Services by Corporations.—The committee recommends the passage of the following resolution by the House of Delegates:

Resolved, That the House of Delegates of the California Medical Association considers that the prac-

tice of corporations selling medical service for profit is a detriment to the best interests of the patient and the public; and further be it

Resolved, That employment by and practice for or with such corporations by members of the California Medical Association is not ethical.

Discussion ensued, and Joseph Catton of San Francisco offered the following substitute resolution, which was seconded by T. Henshaw Kelly:

Resolved, That inasmuch as the Council shall be the judge of ethics, this resolution be referred to the Council for action tomorrow.

It was stated that an attempt should be made to define the type of corporation to which the resolution referred.

An amendment to the original motion was then offered requesting that after the words "it is detrimental to the public and patients," be added the words "and a detriment to the medical profession." No action taken.

A vote was then taken on the substitute motion of Joseph Catton. Unanimously carried.

12. Resolution No. 4—Dues.—The Reference Committee recommends that the resolution on annual assessment as presented by Doctor Spiro be referred to the Council.

13. Resolution No. 5—Herzstein Bequest.—The Reference Committee moves for the acceptance of the resolution on the Herzstein bequest. The motion of the Reference Committee was duly seconded and unanimously carried.

14. Resolution No. 6—Care of Nervous and Mental Cases.—The Reference Committee recommends that the resolution on mental and nervous cases as passed by the Los Angeles County Medical Society be referred to the California Medical Association Committee on Handling the Insane.

On motion of Oliver D. Hamlin, seconded by Harlan Shoemaker, the foregoing Resolution No. 6 was referred to the California Medical Association Committee on Handling the Insane.

15. Technical Specialties.—The Reference Committee recommends that a letter be sent to the Technical Specialties stating that affiliation with the California Medical Association be dissolved and that the existing official relationship will be terminated after this date. That we assure these organizations of our desire to coöperate in all matters which may be of mutual interest.

Joseph Catton moved that the recommendations of the Reference Committee be approved, except that the time for complete dissolution be changed to the date of the next annual meeting. T. Henshaw Kelly seconded the motion, which carried unanimously.

16. Incorporation.—Concerning the data submitted by Doctor Kelly on the incorporation of the Association and Referendum as prepared by the general counsel, the committee recommends that the House of Delegates proceed with steps necessary for the incorporation of the Association.

Oliver D. Hamlin then moved that the Association proceed with the steps necessary for incorporation, which motion was seconded by Harlan Shoemaker, and unanimously carried.

17. Constitution and By-Laws.—In the matter of the proposed changes to the Constitution and By-Laws, the Committee recommends:

1. That the report of the committee be received.

2. That a committee be appointed by the incoming president and president-elect, whose duty it shall be to consider all matters already presented relating thereto, and to submit a new draft of a constitution and by-laws for the California Medical Association to the component county societies (at least three



months before the 1929 annual meeting) and to present a final draft for action at the 1929 annual meeting.

3. That an official notice be sent to all component county societies calling attention to all proposed amendments as previously printed in CALIFORNIA AND WESTERN MEDICINE, and which were again resubmitted at this session, as well as to the final report of the Special Committee of the date of May 2, 1928, and that each component county society be requested to carefully study the same prior to the next annual session.

4. That all data that was submitted at the first meeting of the House of Delegates of the fifty-seventh session be considered as a basis for a constitution and by-laws to be acted upon at the next annual session.

Oliver D. Hamlin then moved for the adoption of the foregoing section of the report of the Reference Committee. Such motion was seconded by Harlan Shoemaker.

Discussion was then had as to the power of the House of Delegates to discharge the committee, and it was decided that the recommendations on the Constitution and By-Laws as presented by the Reference Committee be adopted section by section.

Section 1. On motion of Catton, duly seconded, it was

Resolved, That the revision of the Constitution and By-Laws be taken from the hands of the present committee.

Sec. 2. On motion of Shoemaker, duly seconded, Section No. 2 of the report of the Reference Committee on Constitution and By-Laws was adopted.

Mott H. Arnold of San Diego offered an amendment to Section 2 of the report of the Reference Committee on Constitution and By-Laws, changing the time for submission of a new draft to county societies from three months prior to the 1929 meeting to "January 1, 1929." Carried unanimously.

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W. H. Gilbert of Los Angeles then moved for the adoption by the House of the report of the Reference Committee as a whole, and that all recommendations that were not acted upon previously be approved. Duly seconded, and unanimously carried.

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XIII. **Date of Next Annual Meeting.**—The Chair announced that as stated at the first meeting of the House of Delegates, a poll would be taken to ascertain whether a spring or a fall meeting was desired by the members of the Association in 1929, and in order to bring the question before the House the president presented the following resolution:

Resolved, That the time of the next annual session be set for October, 1929.

Reports from sections were made as follows:

| Section                       | For Spring | For Fall       |
|-------------------------------|------------|----------------|
| Urology .....                 |            | Fall preferred |
| General Medicine .....        | 19         | 45             |
| Pathology and Bacteriology    | 3          | 7              |
| Ear, Eye, Nose and Throat.... | 16         | 19             |

A standing vote was then taken on the question. Motion defeated.

The Chair then stated that the results of the poll would be presented to the Council as a basis for decision on the date of the annual meeting.

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XIV. **Resolutions of Appreciation.**—The secretary read the following resolution as presented by Edward N. Ewer of Oakland:

Resolved, That the California Medical Association hereby expresses its appreciation of the splendid arrangements made by the Sacramento County Society

for Medical Improvement for the housing of the fifty-seventh annual session of this Association; and be it further

Resolved, That we the members of the Association extend our sincere thanks to that society, the city of Sacramento, the Arrangements Committee, the Sacramento Chamber of Commerce, the Grass Valley Chamber of Commerce, the press of Sacramento, and the management and staff of the Senator Hotel for the wonderful hospitality shown to us, their guests.

The resolution was duly seconded and unanimously carried.

Joseph M. King of Los Angeles then offered the following resolution:

Resolved, That the secretary of our Association be instructed to extend to Honorable C. C. Young, Reverend William H. Hermitage, and Doctors S. A. K. Wilson, Ray Lyman Wilbur, J. C. Perry, H. Gideon Wells, Waltman Walters, Paul A. O'Leary, Gunther W. Nagel, and Charles Vivian and Professors Karl F. Meyer and L. S. Schmitt, our most profound thanks for coming before us and having spoken to us on scientific subjects and having done so much to make this meeting a success.

The resolution was duly seconded and unanimously carried.

\* \* \*

XV. **Presentation of the President.**—The Chair appointed James F. Percy and Howard Naffziger to escort the incoming president to the platform. William H. Kiger was then presented to the House and expressed his appreciation of the honor bestowed upon him.

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XVI. **Presentation of the President-Elect.**—The Chair then appointed William Duffield and Robert A. Peers to escort the president-elect to the platform. Morton R. Gibbons was presented to the House of Delegates. Doctor Gibbons then expressed his appreciation of the honor conferred upon him in being elected president-elect.

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XVII. **Robert Fleming Rooney.**—Joseph M. King of Los Angeles stated that he had noticed the presence in the House of Robert F. Rooney, one of the members of the profession, who had taken an active part in the early formation of the Association. At the request of the Chair, Robert A. Peers of Colfax then presented Dr. R. F. Rooney. Doctor Rooney addressed the House briefly and thanked it for the recognition given him.

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XVIII. **Reading and Adoption of the Minutes.**—The minutes of this session were then read and, there being no objection, were unanimously adopted.

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XIX. **Adjournment.**—There being no further business the meeting adjourned.

COMPONENT COUNTY SOCIETIES

FRESNO COUNTY

The May meeting of the Fresno County Medical Society was held at the General Hospital of Fresno County as a joint meeting with the County Hospital staff on May 8.

Doctors J. H. Pettis, R. B. Tupper and C. D. Collins presented interesting cases from their services in the hospital.

Doctor Tupper's patient was a man of forty-six who, four weeks ago, began to have bloody sputum. There was no marked hemoptysis present, but the sputum was red. There was pain in the right side during cough. The expiratory sound on the right side

was prolonged and intensified. Râles were present occasionally, but coughing did not bring them out.

The trachea was pulled over to the right side. Fever was normal to 100. The blood picture showed 15,000 white blood cells with 78 per cent polymorphonuclear leukocytes. Sputum and Wassermann tests were negative. Repeated roentgenograms showed a progressing shadow involving the upper half of the right lung. Doctor Tupper's diagnosis was primary carcinoma of the lung. Doctor Ruff then showed a series of x-ray pictures of a case of sarcoma of the right lung showing rapid disappearance of the growth under deep therapy treatment. X-ray therapy is being given Doctor Tupper's case, but there has been no definite change yet.

Doctor Pettis presented a case of thyroglossal cyst. In operating, Doctor Pettis made a transverse incision just below the hyoid cartilage and dissected out the cyst wall five centimeters long. Dissection of the column of cells was made through the hyoid bone with excision of the body of the hyoid bone. Doctor Pettis pointed out the importance of removing all of the tissue during this operation.

Dr. C. D. Collins presented a young woman who came to the hospital complaining of pain in the back. She had had leukorrhea off and on for years. The right ovary and tube were removed in 1925. This patient was very pale, the abdomen slightly distended, tender, and sides flat. She was vomiting. A diagnosis was made of internal hemorrhage from ectopic pregnancy. On admission her blood showed 19,350 white and 2,000,000 red cells and hemoglobin 28 per cent. She was given three transfusions, and after each transfusion she was better, and then began to go down again, so that operation was decided upon to check bleeding. When the abdomen was opened several quarts of clots and free blood were found, with a ruptured right tube about one-half dollar in size. The placenta was found, but not the fetus. As much blood as possible was left in the abdomen. The blood, two weeks after operation, showed 9700 white and 3,500,000 red blood cells.

In a survey made in Philadelphia in 1918, the incidence of tubal pregnancy was found to be 1:300 in a series of forty thousand pregnancies. The question of treatment arises when rupture has occurred and the patient is exsanguinated and in shock. Occasionally these patients do bleed to death, but usually the hemorrhage is controlled before this occurs. Transfusion should be done before operation, or at least saline should be introduced into the vein. Bleeding in this case continued after transfusion, so that it was advisable after transfusion to stop the bleeding by operation.

Dr. Fred J. Conzelmann of the Stockton State Hospital, who was the principal speaker of the evening, gave a thirty-minute talk on "Advisability of Establishing Psychiatric Clinics." With a view to cutting down the occurrence of mental disease and preventing also the overcrowding of state hospitals, he advises the institution of mental hygiene and child guidance clinics in various centers throughout the state. Doctor Conzelmann said that mental hygiene aims not at curing, but preventing mental disease. The problem must be attacked at the beginning. He quoted Dr. William Mayo as saying that mental ailments are the cause of more misery than tuberculosis and cancer.

Upon the family physician rests the responsibility of recognizing early mental disease. The mental make-up of the child should be noted during physical examination. Throughout large areas in the country no alienist is available for consultation, therefore the family physician must familiarize himself with psychology both normal and abnormal. Mental diseases are simply exaggerations of traits common in all of

us. To grasp an idea of the working of the pathological mind, we should learn to classify our patients according to their reaction toward environment. On this basis there are two great classes of individuals—the introverts and the extroverts. If mental energy is directed toward the outside world the man is called an extrovert, but if directed toward himself he is called an introvert. The introvert is a theorist, lacking in confidence and stability, and broods. In choosing a profession he chooses what allows him to be alone. Extroverts, on the other hand, have an air of assurance; they repress the unpleasant and choose a practical life.

Morbidly shy children who cannot fit into teamwork should be watched for in the schools. A person is considered insane because of his behavior. A person whose behavior is unusual should be observed by a physician over a suitable period. The establishment of mental hygiene clinics will aid the practitioner in this study. In order to get these clinics started, physicians from the state hospital will come to any city wishing to have a clinic. Doctor Conzelmann advised that the medical society should take the initiative by appointing a committee to arrange for the clinic.

It was moved and seconded by Doctors Charles Mitchell and C. P. H. Kjaerbye that a committee of three be appointed to investigate the question of establishing a mental clinic. This motion was enthusiastically and unanimously carried, and the meeting adjourned.

JOHN M. FRAWLEY, *Assistant Secretary.*

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#### ORANGE COUNTY

McFarland's Mission Court Café in Fullerton was the scene, Tuesday night, of the most successful meeting of the Orange County Medical Association for the year. This was the statement made by many of the physicians gathered from all parts of the county for a dinner and program.

An unusual feature was the showing of a three-reel motion picture of "Hand Infections." This is reported to be the first medical motion picture produced by the Eastman Kodak Company for the Committee on Medical Motion Pictures of the American College of Surgeons.

Dr. E. H. Mensing of Los Angeles, formerly of the Mayo Clinic, was the speaker of the evening, and elaborated on the subject of the picture.

F. HAROLD GOBAR, *Secretary.*

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#### SAN BERNARDINO COUNTY

The San Bernardino County Medical Society held its regular meeting at the Desertair Hospital, in Victorville, June 5, by invitation of Doctor Richards. The new hospital was inspected and everyone was much pleased to find so fine a hospital and equipment at Victorville. Dinner was served at the Victorville high school.

Following the dinner the meeting was called to order by the president. Minutes of the previous meeting were read and approved. No new business to be brought up. The program of the evening followed:

Goiter—Dr. A. B. Cook of Los Angeles. Discussion by Dr. P. M. Savage of San Bernardino.

Intubation and Tracheotomy—Dr. A. L. Timon of Los Angeles. Discussion by Dr. A. T. Gage of Redlands.

Philosophizing Regarding Late Syphilis with the Idea of Developing a More Stabilized Theory of Its Treatment—Dr. Ross Moore of Los Angeles. Discussion by Dr. Cyril B. Courville.

At the request of the Boy Scouts of America, the San Bernardino County Society agreed to furnish the



medical service for the Boy Scouts camp this summer. The camp opens July 2 and runs for six weeks.

The last delinquency has been paid, and the society now numbers ninety-seven. It should be over one hundred.

The June meeting is the last until October.

E. J. EYTINGE, *Secretary*.



#### SAN DIEGO COUNTY

The May meeting of the medical staff of Mercy Hospital was entertained by a delightfully informal talk by Dr. H. F. Churchill on the cardiac drugs and their uses. He laid down very clear outlines for the choice of drugs useful in heart conditions, explaining their strong and weak points and sometime contraindications. Emphasis was placed on the desirability of relying upon the few drugs the action of which is thoroughly understood, although most of these newer heart remedies were discussed. It was the sort of address that leaves little to be said in the way of discussion, and was thoroughly enjoyed by the large attendance present.

The balance of the evening was given over to a clever entertainment by a local sleight-of-hand artist.

Chairman of Staff Doctor Chartres-Martin has been enlivening the meetings in his régime by introducing an entertainment feature during the evening's program. They have proven popular with the members, serving their social purpose better even than the time-worn luncheon.

Active work has begun on the new Metabolic Clinic building at La Jolla, which is promised to be ready for occupancy in September.

\* \* \*

Meeting of the Scripps Memorial Hospital Staff, May 21—The usual hospital report for the month was read by the secretary.

Following was the presentation of an interesting case of superior mesenteric thrombosis by Doctor Gillespie. Dr. Francis Smith then very ably presented and discussed a case of rheumatic endocarditis with an involvement of both the aortic and mitral valve, interpellating the history and course with the findings at autopsy. Both cases were freely and interestingly discussed.

\* \* \*

Report of Staff Meeting, San Diego County General Hospital, May 22—The meeting was opened by Dr. Fraser Macpherson, president of the staff. Following the usual routine business of the staff Doctor Stevenson, superintendent of the hospital, presented reports of two interesting cases of ectopic gestation, in one of which there had been two consecutive extra-uterine pregnancies within a short period of each other in spite of the fact that on operating on the first ectopic the other tube had been tied. Both patients made good recoveries.

Doctor Stevenson was followed by Dr. George B. Worthington, who presented a résumé of the treatment of forty cases of arthritis under observation in the hospital for a period ranging from several months to more than three years. This résumé covered a classification of the arthritides according to Ely, Pemberton, Nichols and Richardson, Garrod, and the differentiation of the various types as worked out by Burbank and Hadjopoulos of New York on a serologic basis.

An attempt was made to evaluate the effect of various lines of treatment in the several types presented; that is, where o-iodoxybenzoic acid, brought into prominence by Young and Youmans of Ann Arbor in 1926, seemed to have been most beneficial, and again, where the bacterin emulsion considered specific in contradistinction to a mere foreign protein such as

*B. typhosus*, as suggested by Burbank and Hadjopoulos, had brought about the greatest improvement.

Other therapeutic measures, such as an attack on amebic infestation, diet, physiotherapy, etc., were considered briefly and results tabulated.

Several cases representing the various types were presented together with x-rays by Doctors Babienko and Kellogg of the house staff. A very interesting case demonstrating extraordinary gouty lesions created considerable interest. Valuable discussion by Doctor Stealy and others of San Diego, and by Doctor Copp of the Scripps Metabolic Clinic followed. Much investigation still remains to be carried out in this disabling disease, and the advantages of general hospitals for this purpose are invaluable.

ROBERT POLLOCK.



#### SAN MATEO COUNTY

The San Mateo County Medical Society had its monthly meeting at the Mills Memorial Hospital to celebrate the opening of the new wing of the hospital. The members went on a tour of inspection visiting, among other things, the new maternity department and the new kitchen. Following this an excellent dinner was served.

Dr. Frank Lynch, the guest of honor, presented a most interesting paper on "Pelvic Infections." After a short discussion the meeting closed.

H. WADE MACOMBER, *Secretary*.



#### STANISLAUS COUNTY

The May meeting of the Stanislaus County Medical Society was held in Ripon, May 11, at the Ripon clubhouse.

Dinner was served by the Ripon Ladies' Aid Society, with music furnished by the high school orchestra.

Those present were: Doctors Surryhne, Finney, Clark, McPheeters, W. Smith, H. Smith, Pearson, Reamer, Petr, Gould, Stewart, Hartman, Porter, and Hiatt. Guests were: Doctors R. T. McGurk, Barton Powell, and Fred J. Conzelmann of Stockton.

Dr. R. T. McGurk acted as toastmaster, and after a few preliminary remarks introduced Dr. Barton Powell, who gave an interesting travelogue on his trip around the world. Dr. Fred J. Conzelmann read a paper on "Psychiatry," dwelling particularly on introverts and extroverts. Doctor McGurk called upon several members of the local society for short talks.

It was an informal meeting, good spirit prevailing, and one of the most enjoyable we have had.

The secretary reported that he had sent flowers and best wishes to Dr. J. W. Morgan and Dr. J. A. Young, who were in the hospital at that time.

There being no further business the meeting was adjourned.

R. STEWART HIATT, *Secretary*.

### CHANGES IN MEMBERSHIP

#### New Members

Contra Costa County—Henry D. Newfield, Bay Point.

Los Angeles County—Stanley B. Anderson, Burbank; Charles E. Futch, Grant H. Lanphere, Los Angeles; Oliver M. Moore, Bell.

Riverside County—Louis P. Bolander, Arlington.

San Diego County—Eugene J. Bittman, San Diego.

San Francisco County—Dudley W. Bennett, Edward H. Bolze, Bradford F. Dearing, Harry Arthur Deering, Meyer B. Fractman, Russell L. Guffey, Ervin J. Hund, John J. Kingston, Joseph Levitin, Gregory N. Maximov, Thomas H. McGavack, John J. McGuire,

Joseph F. Poheim, Lydia Shimkin, William R. Vizard, Zura O. Waters, Jesse H. West, Harry A. Wyckoff, San Francisco.

Santa Barbara County—Harold R. Schwalenberg, Santa Barbara.

Santa Clara County—David N. Roberg, San Jose.

Sonoma County—Clifford M. Carlson, Santa Rosa.

#### Transferred Members

Richard G. Brodrick, from Alameda to San Francisco County.

Ralph E. Swartz, from Alameda to San Francisco County.

#### Deaths

**Henkel, Fred W. E.** Died at San Diego, California, May 12, 1928, age 70 years. Graduate of Chicago College of Physicians and Surgeons, Illinois, 1890. Licensed in California, 1925. Doctor Henkel was a member of the San Diego County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Jackson, James Albert.** Died at San Diego, California, May 31, 1928, age 49 years. Graduate of College of Physicians and Surgeons, Medical Department, University of Southern California, 1903. Licensed in California, 1903. Doctor Jackson was a member of the San Diego County Medical Society, the California Medical Association, and the American Medical Association.

**Juilly, George H.** Died at Bartlett Springs, California, May 30, 1928, age 51 years. Graduate of Medical Department, University of California, 1902. Licensed in California, 1902. Doctor Juilly was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

## UTAH STATE MEDICAL ASSOCIATION

W. R. CALDERWOOD, Salt Lake.....President  
E. H. SMITH, Ogden.....President-Elect  
M. M. CRITCHLOW, Salt Lake.....Secretary  
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....Associate Editor for Utah

### COMPONENT COUNTY SOCIETIES

#### SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held in the assembly room, Medical Arts Building, Salt Lake City, Monday, May 14.

Meeting called to order at 8:05 p. m. by President William F. Beer. Eighty-five members and six visitors were present.

Minutes of the previous meeting were read and accepted without correction.

No clinical cases were presented.

The society was indeed fortunate in having two guests from San Francisco. Howard F. Naffziger gave a talk on "The Diagnosis of Brain Tumor." He discussed this condition from a clinical, pathological and x-ray standpoint and covered the subject very thoroughly, illustrating his talk by lantern slides. Discussion by E. F. Root, E. M. Neher, G. B. Coray, A. C. Callister, G. H. Pace, G. G. Richards and C. L. Sandberg.

The second talk was by Eugene Kilgore on "Syphilitic Disease of the Heart and Aorta." He gave a thorough discussion of the symptomatology and the physical signs, stressing the fact that there may be no signs at all. After showing some x-ray films illustrating his points he entered into the treatment of the condition. This very interesting talk was discussed by G. G. Richards and Clarence Snow.

E. F. Root announced that the Pacific Northwest Medical Association would meet at Tacoma on July 5,

1928. He outlined the aims of the association and urged a full attendance.

Adjournment at 10:30 p. m.

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The regular meeting of the Salt Lake County Medical Society was held in the assembly room of the Medical Arts Building, Salt Lake City, Monday May 28.

Meeting called to order at 8:15 p. m. by President William F. Beer. Eighty-seven members and four visitors were present.

Minutes of the previous meeting were read and accepted without correction.

President Beer announced the death of our fellow member, George V. Schramm.

W. H. Waterson, chief of the tuberculosis section, Edward Hines Jr. Hospital at Maywood, Illinois, addressed the society. He first spoke of the splendid work F. B. Steele, a member of the society, is doing at that hospital. He showed x-ray films of patients with spontaneous and artificial pneumothorax, phrenicotomy and thoracoplasty, and many films of patients with tuberculosis. He gave a splendid talk about the indications and results of the various surgical procedures in pulmonary tuberculosis. Discussion by A. C. Callister.

The second paper was by T. Henshaw Kelly of San Francisco, on "Pregnant Women and Damaged Hearts." He gave a very interesting talk on factors in pregnancy throwing more work on the heart. He divided the heart cases into three classes: (1) the neurotic, (2) rheumatic, and (3) syphilitic, and outlined the procedure for each group, stressing the fact that the outcome depends on the condition of the heart muscle and not the valve.

The third paper was by George Warren Pierce of San Francisco, on "Plastic Surgery Since the Great War." He showed lantern slides of various patients on which excellent plastic surgery had been done and went into detail about plastic surgery on the ear. He showed motion pictures on how to produce a tubed pedicle which could be transferred to any part of the body. This splendid paper was discussed by L. N. Ossman.

In conclusion Doctor Pierce showed a motion picture of the seventh round of the Tunney-Dempsey fight.

Adjournment at 10:45 p. m.

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The regular meeting of the Salt Lake County Medical Society was held in the assembly room, Medical Arts Building, Salt Lake City, Monday, June 11.

Meeting called to order at 8:10 p. m. by Vice-President C. M. Benedict. Thirty-two members were present.

Minutes of the previous meeting were read and accepted without correction.

The verbal report for the Committee to Supervise Public Lectures was given by Ralph Pendleton.

Announcement was made that two delegates to the State Medical Convention were to be elected. H. P. Kirtley moved that the first two alternates be made delegates. Seconded and carried. The first two alternates were Sol G. Kahn and L. E. Viko.

The secretary reported for the Program Committee. The report was discussed by Ray T. Woolsey and D. G. Edmonds. Dr. L. N. Ossman offered a resolution to the effect that the Program Committee continue to get outside men as speakers. Seconded and carried.

E. S. Pomeroy read the report of the Committee



on Public Health and Legislation, which was filed by the secretary.

The secretary read the report of J. U. Giesy, chairman of the Necrology Committee.

J. P. Kerby gave a verbal report for the Medico-Legal Committee. This was discussed by H. P. Kirtley, who urged every member to report every threatened malpractice suit to the committee.

W. R. Tyndale gave a verbal report for the Library Committee and requested that the delegates to the Utah State Medical Association try to reduce the state fee \$1. This was discussed by Sol G. Kahn, who moved that a single assessment of \$1 be levied on the members of the Salt Lake County Medical Society for the use of the library, and the secretary be instructed to collect the same. Seconded and carried.

Sol G. Kahn moved that the delegates of the Salt Lake County Medical Society attempt to reduce the state dues \$1. Seconded and carried.

William T. Ward reported for his committee, which supervises charitable institutions, and suggested that his committee be made permanent. Discussed by L. N. Ossman and Sol G. Kahn. The secretary moved that the Community Clinic Committee be instructed to request the board of directors to remedy two evils in the Community Clinic, namely, providing treatment for people who can afford to pay for it, and to see that funds are available for proper treatment.

L. J. Paul reported for the Boy Scout Committee and recommended that typhoid inoculations be compulsory for boys in camps. W. R. Tyndale suggested that smallpox vaccination be compulsory also.

The secretary discussed the feasibility of having a dinner meeting in the fall. L. J. Paul moved that the first meeting in October be a dinner meeting at a cost not to exceed \$1 per plate, which shall be paid by each member present. Seconded and carried.

L. J. Paul announced that Doctor Beeley has requested the coöperation of the Salt Lake County Medical Society in giving boys who come before the Juvenile Court a thorough physical and mental examination. He moved that a committee of six, three of which should be psychiatrists, be appointed to coöperate with Doctor Beeley. Seconded and carried.

J. P. Kerby moved that a committee be appointed to consider the revision of the fee schedule for the Salt Lake County Medical Society. Discussed by S. C. Baldwin. Seconded and carried.

Adjournment at 9:25 p. m., after which an informal smoker was held.

M. M. CRITCHLOW, *Secretary*.



#### UTAH COUNTY

On the night of Wednesday, May 9, the Utah County Dental Society were the guests of the Utah County Medical Society. As usual the regular meeting was preceded by a banquet at the Roberts Hotel, Provo.

After the supper Dr. A. J. Ridges of Salt Lake City read a paper on "Focal Infections of the Head."

Following this paper the members of both societies devoted the remainder of the evening to a roundtable discussion of "Fractures of the Jaw."

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The meeting of May 23 was, as usual, held at the Hotel Roberts. The chief paper of the evening was read by Dr. John Sharp of Salt Lake City, on the subject of "Hypertension." The doctor went into the subject at length, particularly stressing the importance of hypertension as applying to life insurance risks.

\* \* \*

On Wednesday, June 13, the meeting was given up to the showing of two films covering subjects of professional interest. The first was on "Diagnosis and Treatment of Infections of the Hand," the second on "Intestinal Peristalsis."

ARNOLD ROBISON, *Secretary*.

#### WEBER COUNTY

Special meeting of the Weber County Medical Society, held May 15 at the Hotel Bigelow, President W. R. Brown presiding. Thirty-seven members were present and six members of the Box Elder County Medical Society. Dr. Maurice Critchlow, secretary of the Utah State Medical Association, and Dr. Foster J. Curtis of Salt Lake County Medical Society were present.

Motion by Dr. E. R. Dumke that all doctors close their offices during the Utah State Medical meeting June 28-29, was seconded and passed unanimously. Dr. Clark Lowe Rich, whose application for membership in the society was approved by the censors, was admitted as a member of the Weber County Medical Society.

Dr. Howard Naffziger of the University of California Medical School spoke on "Brain Tumors," illustrated with numerous slides. Dr. Eugene Kilgore, also of San Francisco, gave a paper on "Angina Pectoris," and showed slides of syphilitic aortitis. The society was very fortunate in having such outstanding men on the program. Both papers were very much appreciated.

Discussion was opened by Dr. A. A. Robenson.

Meeting adjourned.

GEORGE M. FISTER, *Secretary*.

#### NEWS

The regular meeting of the Holy Cross Hospital Clinical Association was held in the lecture room of the hospital, May 21, at 8 p. m.

#### Program

Paper on "The Autonomic and Sympathetic Nervous System"—Dr. R. M. Tandowsky.

Case report No. 1, "Intraligamentous Leiomyoma of the Broad Ligament" and case report No. 2, "Recurrent Carcinoma of the Uterus"—Dr. T. William Stevenson.

Case report, "Spirochetal Bronchitis"—Dr. E. W. Thielen.

Pathological Specimens—Dr. T. A. Flood.

#### DEATHS

Dr. George Viall Schramm, 60, widely known physician and surgeon of Salt Lake, died Monday night at the family home, 163 South Sixth East Street, following a lingering illness. He had lived in Salt Lake since 1900, and was a member of the attending staff at the Holy Cross Hospital at the time of his death.

Doctor Schramm was a graduate of Northwestern University and studied for some time at Johns Hopkins University. He was considered one of the leading eye, ear, nose and throat specialists of the country. He was a native of Galesburg, Michigan.

Besides being an active member of the Salt Lake County Medical Society and the Utah State Medical Association, Doctor Schramm was prominent in civic and Masonic circles. He was a member of the Rotary Club, Weber lodge of the Free and Accepted Masons of Ogden, a member of El Kalah temple, Nobles of the Mystic Shrine, of the Commandery Knights Templar, and of the Salt Lake Scottish Rite.

He is survived by his widow, Elizabeth R. Schramm; a daughter, Ellen Marie Schramm; two sons, Clem Sanford and Stephen Rowland Schramm, and a brother, Fred C. Schramm, all of Salt Lake.

## MISCELLANY

From time to time in this department of California and Western Medicine, appear columns grouped under the following headings: Comment on Current and Recent Articles in this Journal; News; Medical Economics; Readers' Forum; California State Board of Health; and California Board of Medical Examiners. For Book Reviews, see index on the front cover, under Miscellany.

### NEWS

**Bar Association**—The legal profession, acting through the Los Angeles Bar Association and the state bar, is making a determined effort to rid the profession of those attorneys who engage in illegal or unprofessional practices. We have now the machinery to accomplish what we have been struggling for so many years to effect.

The Los Angeles Bar Association, in addition to the many reforms in administration of justice to which it is directing its attention, is particularly interested in stopping the practice popularly known as "ambulance chasing." The aim of the bar association is to promote high character of its members and maintain their practice in the canons of ethics of our profession. There are so-called attorneys who bring ill repute to the whole profession. Some of the latter are working with laymen, who call themselves "adjusters," or have other designations, who prey upon the injured, stir up unjust litigation and illegally share any funds to which the client may be entitled.

Our association would appreciate communications from individual physicians and surgeons promptly bringing to our attention instances where attorneys or laymen are guilty of the above practices. The chairman of our Committee on Illegal Practices is John Beardsley, Esq., 610 Title Insurance Building, to whom such communications may be sent, and will be held confidential if so requested.

Members of the medical profession have daily information of these practices, and for the benefit of the public and of your and our profession I ask your coöperation in this movement.—H. T. Morrow, President Los Angeles Bar Association. (*Bulletin L. A. County Med. Assn.*)

**The Sutter Hospital of San Francisco**—The Sutter Hospital of San Francisco, located on Sutter Street, between Hyde and Larkin, has just recently been opened. It is a limited general hospital of sixty beds, open to all members of the California Medical Association, but particularly devoting itself to surgery of all types.

**Drug Hospital Chief Selected**—Dr. Thomas F. Joyce of New York, recently retired from the New York City Department of Health, where he had charge of care and treatment of narcotic drug addicts, recently was announced as medical superintendent of California's new State Narcotic Hospital.

Leroy R. Bruce, secretary of the State Department of Institutions, stated that "New York authorities characterize the new superintendent as the best man in the country in handling the problems of narcotic addicts."

The State Narcotic Hospital, ordered by the last legislature, will be the first of its kind in California.—*San Francisco Chronicle*, June 12, 1928.

**The George Williams Hooper Foundation for Medical Research at the University of California Medical School**—New appointments:

Dr. J. C. Geiger, A. B., M. A., M. D., Dr. P. H., associate professor of epidemiology, Hooper Founda-

tion. Doctor Geiger was recently professorial lecturer in epidemiology, University of Chicago, and assistant to the Commissioner of Health and Executive Officer, Chicago City Board of Health.

Dr. Alfred C. Reed, B. A., M. D., professor of tropical medicine, Hooper Foundation. Doctor Reed was formerly associate clinical professor of medicine, in charge of tropical medicine and parasitology at the Stanford University School of Medicine.

Dr. Edward Matzger, M. D., research associate in medicine, Hooper Foundation.

**Testimonial Dinner to Dr. Henry G. Brainerd of Los Angeles**—Two hundred friends of Dr. Henry G. Brainerd honored him with a dinner at the University Club, May 23, the occasion being his seventy-sixth birthday. Dr. Ross Moore acted as toastmaster.

As a past president of the University Club he was presented with a gold pen by Judge Conrey.

Dr. George Cole, representing the medical fraternity, presented Doctor Brainerd with a portfolio with the following inscription, which was signed by all present:

"On this your seventy-sixth birthday, Doctor Brainerd, we want you to know what we think of you.

"This dinner and these speeches are the tangible evidences of our thought. But behind the dinner and speeches and good cheer there is an intangible something which can be expressed neither in words nor deeds.

"It is something within us—a spontaneous individual reaction toward your personality which comes from the heart of each of us. It is due solely to that quality of your innermost self which has made you the ideal physician and therefore a dominating personality of our medical world, and the man nearest the Man from Galilee."

An insight into the many splendid qualities and attainments of the guest of honor was given by Dr. Joseph M. King.

The address of the evening was given by President von Kleinsmid of the University of Southern California.

### READERS FORUM

Editor, California and Western Medicine:

Dear Doctor—One of the notable accomplishments of the Council of the Los Angeles County Medical Association for the current year has been the establishment of a military section of the society. The profession in California was proud of the response that was made to the call in 1917. A military section of our county society will perform a useful and most necessary purpose in promoting interest in national military preparedness without which we cannot have efficiency in service.

The lessons of the Spanish-American War, compared with the experiences during the World War, demonstrate that military medicine plays quite as important a rôle in the success of armies, as General Gorgas and public health played in the success of the engineers upon the Panama.

Los Angeles County Medical Association is to be commended upon the forward-looking action of its



council. It is an example that may well be emulated by other county associations throughout the country.

Enclosed herewith is a copy of Doctor Shoemaker's letter to Colonel High which you may use in giving publicity to this matter.

With best wishes, I am

Sincerely and fraternally,

C. W. DECKER.

\* \* \*

Los Angeles County Medical Association

Los Angeles, California,

May 15, 1928.

Daniel L. High, M. D.,  
1100 Mission Road,  
Los Angeles, California.

My dear Doctor High—Your petition to create a military section of the Los Angeles County Medical Association was presented at the meeting of the board of councilors held on May 7, 1928, and the secretary was instructed to inform you that your request had been granted.

Article X, Section 1, of the By-Laws states: "Special societies, by vote of the Council, may be recognized as sections of the Los Angeles County Medical Association, provided that no section admit to active membership any physician who is not a member in good standing of the Los Angeles County Medical Association, or of the recognized County Medical Society of the county in which he resides."

Article X, Section 3, of the By-Laws states: "Each special society recognized as a section of, or as in affiliation with, the Los Angeles County Medical Association and having at least ten members, shall elect annually one councilor among its members, to serve one year or until his successor is duly elected."

The *Bulletin of the Los Angeles County Medical Association* goes to press one week preceding the first and third Thursday of each month. Will you kindly have your program in not later than Tuesday in order that it may be published in the bulletin?

By order of the Council.

(Signed) HARLAN SHOEMAKER, M. D.,  
Secretary.

## MEDICAL ECONOMICS

### OUTLINE OF STUDIES\*

#### PART I

#### Preliminary Survey of Data Showing the Incidence of Diseases and Disabilities Requiring Medical Services and of Generally Existing Facilities for Dealing With Them

1. *The Diseases and Conditions Most Responsible for Disability and Inefficiency.*—There now appear to be at least six different kinds of sources of information regarding the incidence and prevalence of disease. Unfortunately the various data derived from these sources do not always appear to harmonize. One investigation may show digestive disorders as one of the most serious causes of illness, another may appear to ignore such disorders.

This, then, would be a study of the results of vari-

ous recent studies. It would be an attempt to interpret results, harmonize them, and arrive at conclusions.

A special committee has been appointed to supervise this study. It will be conducted by the Statistical Office of the United States Public Health Service.

2. *The Prevalence of Certain Disorders Which Appear to be Among the Most Serious Causes of Disability and Inefficiency.*—According to various rough estimates, mental and nervous disorders, syphilis and gonorrhea, malaria and diabetes are causes of a large amount of disability and inefficiency.

If almost 1,000,000 of the children and young people of the United States now attending schools and colleges will enter hospitals for mental disease some time in their lives if present rates for first admission continue, it is important that these disorders be discovered in their early stages. Among what proportion of adults might early symptoms of mental and nervous disorders be discovered which could be successfully dealt with were there qualified specialists available? Likewise, what facts would similar studies reveal among college students, among high school students, and among elementary school students? Because of the importance of the adolescent period it is believed that a study among high school students would be particularly fruitful of results.

Although syphilis and gonorrhea are among the most serious diseases requiring medical care, there is an obvious dearth of information regarding their prevalence today. The extent of the need for specialists and for clinics and hospitals for the treatment of venereal diseases cannot be estimated until we have more accurate knowledge as to the prevalence of these diseases. This study might be made with the coöperation of the United States Public Health Service or the American Social Hygiene Association.

Because malaria is a disease frequently causing prolonged disability and great economic loss, and because, on the other hand, it is a preventable disease, it is important to know just how many persons living in the United States are afflicted with it during the course of a year. A rough estimate has been made, but it is little more than a guess. The importance of the subject requires a more accurate estimate. In this connection the question might be asked, Why is malaria, a disease easily prevented still highly prevalent? A selection might be made at random of one thousand cases of malaria for the purpose of determining just why preventive and curative measures have not been used.

Although it has been estimated that there are in the United States between 100,000 and 1,000,000 diabetics, no one knows whether the correct figure is nearer the smaller amount or the larger. Joslin indicated in a recent statement that he thought the true number was nearer 1,000,000.

Before an estimate can be arrived at regarding the adequacy of the present number of physicians trained in the treatment of these particular diseases, it is obviously necessary to know how prevalent they are.

Field studies will have to be made in the investigation of some of the disorders named; in other instances questionnaires and existing data may be utilized.

3. *The Proportion of Persons, Both Adults and School Children, Not Disabled Who Are in Need of Medical Service.*—In planning to secure data regarding adults, arrangements would have to be made for the examination of a large number of persons representing various occupational and economic groups of the population. The study should reveal the proportion of adults who have ailments and defects the diagnosis of which requires the services of specialists with expensive equipment, and the proportion whose ailments and defects require only the service of a general practitioner. Now there is considerable differ-

\* This outline is an exhibit to the paper on the "Cost of Medical Care" by Dr. Ray Lyman Wilbur, president of Stanford University, which is printed in this issue. It is printed in the Medical Economics column because of its pertinent relation to that department.



ence of opinion on this question. The proportion of adults who need medical service and are getting it, should be shown, as well as those who need it but are not receiving it.

Studies have been made among 17,000 school children in Missouri and among other groups, but virtually all of them have been made without adequate standards. There arise such questions as the following: Exactly when is a tonsil diseased and exactly what is a defect of posture? In respect to examinations of this kind it is necessary in some cases to set up standards before statistics can be made available upon which reliable estimates of necessary medical service may be based.

This study requires field work. The proportion of adults in need of medical service is to be covered, at least in part, by a study now being planned by the Statistical Office of the United States Public Health Service; and it is possible that this office may eventually be able to assume the responsibility for the entire study.

4. *Existing Facilities for the Treatment and Prevention of Disease and Defectiveness—A Statistical Study.*—This study would provide for the compilation of existing statistics regarding the number, rate per thousand and distribution of individual practitioners and medical agencies, and for the procurement of data not now in existence.

It would include an analysis of the services now being performed by both practitioners and agencies. Among a considerable number of questions to be dealt with are the following: What proportion of hospitals are completely equipped for diagnosis and treatment so that they constitute a true medical center? What proportion of clinics are so equipped? What proportion of physicians have access to hospitals for therapeutic treatment, and what proportion have access to clinics or out-patient departments where full facilities for modern diagnosis are available? What proportion of physicians are ready and willing to make periodic health examinations?

This study requires the use of questionnaires and of reports of statistical studies previously conducted by the American Medical Association and other agencies. It would be desirable if the American Medical Association could conduct this study.

5. *Surveys of the Medical Services of a Large City, of a Small City, of a Rural Community.*—"Hospital and health" surveys have been made at Cleveland, San Francisco, Louisville, and other cities which have been illuminating and stimulating, and which have resulted in the improvement of hospital and health services. Those surveys have not included the work of private practitioners, private nurses, dentists, and other services. They have stopped short of a complete survey for the reason, apparently, that they have been conducted at the request of such organizations as "Community Welfare Association" and the "Council of Social Agencies" whose active interests have not extended to all aspects of medical service. As has been pointed out, however, private practice and public health are so closely related that it is illogical to consider them separately. Clearly the development of a well-balanced program requires a setting forth of all the facts.

These surveys, particularly those in large cities, should consider the services rendered by various irregular practitioners, such as osteopaths, chiropractors, Christian Scientists, and masseurs. It is particularly desirable that attention be given to advertising dentists. There are indications that they are doing a large volume of business in the cities; and the charge has been made that the service these dentists perform is inferior and even detrimental to the health of the patient. Because of the close connection between the care of the teeth and disease it is evident that the

extent and nature of inferior types of dental service should be determined.

The survey, in each case, should be conducted with the support of some organization representing the general public, the various kinds of persons engaged professionally in medical services, and the small but important group of persons who supply the funds with which many medical institutions are established. The approach to the problem would be the same in a large city, a small city, and a rural community. Details of procedure might vary slightly.

After the medical facilities of a community have been surveyed and listed, it next becomes desirable to determine whether these facilities are adequate. Before anyone can arrive at an estimate or even a reasonably accurate opinion regarding the adequacy of the present supply of medical practitioners and agencies, it seems necessary that there be established standards by which existing facilities may be measured. Standards have been established for the health services of a community, but there is no good reason for stopping here. "Separation of forces" as has well been pointed out, "means lack of understanding, absence of coördination between workers whose tasks are much the same; it means friction and conflict with resulting harm to both medicine and public health."

This study would make available a standard for separate communities and in addition these standards might be used as a basis for determining a standard for the entire country, thus making possible an intelligent estimate of the present national supply of medical practitioners and agencies. In connection with this or other studies, it will probably become necessary to raise the question: Under just what conditions are the services of a physician necessary? When should a physician be called for a bad cold in the head or for a headache, and when may home remedies be used? In arriving at a set of standards for communities of various sizes and for the entire nation, more or less arbitrary methods would be necessary; but a fairly large representative committee associated with the study would give weight to the conclusions that might tentatively be formulated.

In considering the desirability of a survey of the medical services of a city, those in charge might wish to go a step further and consider the somewhat more fundamental problem of determining what diseases and conditions in a community require medical services. Furthermore, in surveying the available facilities, they might wish definitely to consider the cost of existing services to the people. Thus, it may seem wise for one or more cities to conduct locally, though on a somewhat smaller scale, a series of studies which would make available satisfactory information on the three main problems with which this committee is concerned.

This field study would parallel Study No. 6 on the Cost and Incidence of Sickness. Study No. 9 on Capital Investment and Income in Private Practice should be considered in connection with it.

That part of the study to be conducted in rural communities may perhaps be made by the Agricultural Experiment Stations of various states with the aid of the Advisory Committee on Social and Economic Research in Agriculture of the Social Science Research Council.

It may be desirable that the entire study be conducted under the general supervision of a special committee representing the American Medical Association, the Public Health Service, the American Public Health Association and the Social Science Research Council.

(To be continued in the next issue)



## TWENTY-FIVE YEARS AGO \*

### EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume 1, No. 9, July, 1903

From some editorial notes:

... Organization is growing apace. The good work of national organization of the whole medical profession is going on rapidly. Texas has reorganized its state medical society, and has acted wisely in adopting the Constitution and By-Laws recommended by the American Medical Association, practically without alteration. . . .

... We, in California, certainly want to make a satisfactory showing, and we can hardly do this unless we have at least two-thirds of the physicians of the state within the state society. This can only be the case if they are members of the county societies, and it therefore becomes the duty of every member of a county society to see that every reputable physician in his county is or shall become a member of the county society. . . .

... Contract doctors. The contract doctor evil probably exists for the same reason "that a few fleas are good for a dog"; at any rate, it is with us in spite of all efforts to the contrary. If we cannot rid ourselves of the evil, we can at least derive a modicum of consolation from the cheerful contemplation of others in worse plight. . . .

... Why annual meeting place was selected. When the matter of choosing a place for holding the next annual meeting was up for discussion at Santa Barbara, some expressions of opinion were made favoring the larger cities. . . .

... To make the journal the medium for the dissemination of news, it will be necessary that it have reporters all over the state, and in general the man most fit for such work is the secretary of the county society. . . .

... Food or poison? Once more the "Is-alcohol-a-food-or-a-poison?" question seems to be exciting a good deal of discussion in the editorial columns of the press of the country, both lay and medical. And in Europe, too, much has recently been written upon this subject. Tables of statistics, maddening in their extent and complexity, have been compiled and arranged, always with utter disregard to the fact, long since stated by an able man, that "nothing lies like statistics." . . .

... For instance, it is absurd to apply the words of Dr. De Boeck, at the International Prison Congress, to the average individual who regularly drinks a moderate amount of wine with his meals, and is none the worse, and sometimes the better, for it: "Alcohol," he said, "is a violent poison to the nervous elements; destroys them when taken in large doses, or by a slow death when taken in small, but often repeated, quantities." Such immoderate and untempered language can do no good; distorting facts to make ammunition for argument is never profitable, for sooner or later the whole argument is discredited. . . .

From the report of the Committee on Necrology, by R. F. Rooney, M.D., Auburn, at the thirty-third annual session at Santa Barbara:

... To the President and Members of the Medical Society of the State of California: Your committee begs leave to present the following report:

Another year has rolled by into history, and again we are called upon to commemorate our dead, and for a moment to pause and bow our heads in respect

\* This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

to those who have passed away. Death has struck high and hard, and our ranks have lost two of our past presidents, and four active members since last we met. He claimed some who were aged and full of honors, and others who were in the prime of their powers and manhood, before the promise of their opening lives could be fulfilled. But, as Horace said, many centuries ago:

"We are all compelled to take the same road; from the urn of death, shaken for all, sooner or later the lot must come forth.

"Therefore should we, the living, take daily thought that we may so live that if, perchance, we draw our lot tomorrow, we can face death with a grave front and a good conscience."

One by one the early leaders of the profession of this state are passing away. This year we mourn the loss of one of our greatest; a man of international reputation; of deep learning; of great mental force and ability; of burning professional zeal; of a lifelong devotion to duty; of a charitable heart; of cleanly and well-spent life; of indomitable industry and will-power; of an unexcelled philanthropy. I ask you all to bow in reverence to the memory of Levi Cooper Lane, M.D., LL.D., surgeon and founder of Cooper Medical College and the Lane Course of Medical Lectures. . . .

... In 1864, owing to the death of Doctor Cooper, and the absence of some others of the faculty, the Medical College of the Pacific suspended its teaching, and Doctor Lane, with Doctors Gibbons, Morse and others, joined Doctor Toland in the school which he had recently inaugurated, the Toland Medical College.

The relationship, however, proved unsatisfactory, and in 1870 Doctor Lane with his associates in the faculty of the Medical College of the Pacific, reorganized that school, and with some subsequent changes in name, affiliation and personnel of the faculty, was finally refounded as Cooper Medical College, in 1882, by Doctor Lane, with liberal endowments in substantial buildings and his own guiding genius. . . .

From a Symposium on Pure Milk Supply, and from a paper on the "Necessity of a Pure Milk Supply for Infant Feeding" by George H. Evans, M.D., San Francisco:

... If every infant were permitted the privilege of deriving its nourishment from the breast of a healthy mother, a paper with the above-named title would be unnecessary, it being universally conceded that breast milk is the ideal infant food and that no substitute can satisfactorily take its place. I desire to postulate that we have in uncooked, fresh, clean, uniform stable milk, from a healthy herd of cows kept under sanitary conditions, when properly modified, the best substitute. . . .

From the minutes of the San Francisco County Society:

... At the regular monthly meeting of the San Francisco County Medical Society the program was as follows: "Some Clinical Chest Cases with Fluoroscopic Reports," by C. M. Cooper, M.D.; "The Value of Blood-Pressure Observations in Surgery," by Wallace I. Terry, M.D.; "Observations of a California Medical Tramp on His Peregrinations Around Asiatic Plague and Cholera Centers," by John C. Sundberg, M.D. (U. S. Consul at Bagdad). . . .

From the minutes of the California Academy of Medicine:

... The regular monthly meeting of the Academy was held Tuesday evening, June 23, at the offices of Harry M. Sherman, M.D., Emmet Rixford, M.D., presiding, in the absence of the president. . . .

... Ray L. Wilbur, M.D., read an exhaustive report on the recent typhoid fever epidemic at Palo Alto giving statistics of infection, progress and treatment of the disease. . . .



## CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, M. D.  
Secretary of the Board

According to reports of our special agent, Cedelia Bartholomew, San Francisco, pleaded guilty on May 21 to violation of the Medical Practice Act and was granted one year probation.

The charters of the Berkeley Chiropractic High School and of the Berkeley Chiropractic College, operated at 2158 Shattuck Avenue by Percy Purviance were revoked today by Superior Judge J. J. Trabucco in a decision that upheld the contention of the State Chiropractic Board that the Purviance institutions were diploma mills operated solely for gain. Revocation of the charters of the two schools is effective immediately. . . . The court decision today upheld every count in the state board's charges against Doctor Purviance and his schools. The state board charged: (1) That the school and college were operated solely for pecuniary gain. (2) That there was no *bona fide* course of study taught. (3) Diplomas were issued regardless of qualifications of persons receiving them. (4) No examinations were held before diplomas were awarded. (5) Diplomas were issued to persons unfit to receive them. (6) The school and college is a diploma mill and should be abolished.—*Oakland Tribune*, June 8, 1928.

According to report, on June 15 Clodie Brown was found guilty of practicing without a license by a jury in Los Angeles composed entirely of women. The attorneys gave notice of appeal.

A fifteen-year-old high school girl is dead and a practicing member of the Stockholm Swedish Institute is in the city jail charged with the suspicion of murder in connection with performance of an illegal operation. Dr. Arthur O. Berg, chiropractor, with offices at 659½ Northwestern Avenue, was arrested yesterday on the illegal operation charge on orders from Deputy District Attorney Tom Menzies.—*Los Angeles Illustrated Daily News*, June 14, 1928.

S. G. Chew, Chinese herbalist and licensed chiropractor of San Francisco, was recently granted probation for one year on condition that he does not violate the terms of the Medical Practice Act during that period.—“News Items,” May and June, 1928.

Vivian de Vere recently pleaded guilty in Los Angeles to a charge of violation of the Medical Practice Act and was sentenced to pay a fine of \$100, said sentence being suspended for two years.

Katherine Evans, licensed chiropractor, recently pleaded guilty in San Bernardino County to a violation of the Medical Practice Act and was sentenced to sixty days in the county jail, suspended for two years.

Open revolt by the Pasadena group of the Occult Science of Christ Church against the “Rev.” Mrs. Myrtle I. Hoagland, its pastor, and an investigation by the State Board of Chiropractic Examiners into the asserted “divine” healing methods employed by “assistant” pastors at Thirty-Ninth and Budlong streets, headquarters of the cult, loomed yesterday, as a committee of ex-members of the “congregation” prepared to seek court action to declare the organization insolvent.—*Los Angeles Illustrated News*, May 16, 1928.

Nine weeks ago he was a restaurant employee, a month ago he was a “doctor,” and today he is in jail. That is the history of Howard A. Kelly, according to State Medical Inspector Byrne. According to Byrne, Kelly lost his job in a Pasadena café about March 20. He purchased some medical books and began to study

and two weeks later he opened an office. Following several complaints a healthy patrolman was sent to seek an examination and came away with the information that he had a bad jugular artery and a faulty jugular nerve, Byrne said.—*Los Angeles Herald*, May 28, 1928.

The jury in the trial of Dr. G. Carl H. McPheeters, who is charged with sending obscene matter through the mails, disagreed by a vote of 7 to 5 for conviction after six hours of deliberation in the Federal Court yesterday afternoon, and last night was discharged. . . . The judge stated that the trial would be continued to the November term of the Federal Court session in Fresno.—*Fresno Republican*, May 16, 1928.

The following is quoted from an Associated Press dispatch dated San Francisco, May 24, published in the *Sacramento Bee* of the same date: “Charged with impersonating a colonel in the United States Army Medical Corps and with representing himself in Mexico City as a physician who had been sent there to examine Charles A. Lindbergh during the ‘Lone Eagle’s’ recent good-will flight, Lester Parker has been indicted by the United States Grand Jury.”

In an effort to have Judge Oliver Youngs, Jr., ousted from the bench, Percy Purviance, 2168 Shattuck Avenue, issued an order yesterday afternoon in the Superior Court, citing Judge Youngs to answer a charge of failure to perform his duty. Purviance, who was secretary of the Berkeley Chiropractic College alleges that Judge Youngs refused to issue a complaint against a man whom he charged with a misdemeanor. . . . Purviance was arrested several weeks ago on a charge of practicing without a license. His case has not yet been heard in court.—*Berkeley Gazette*, June 8, 1928.

Dr. E. F. Reno, graduate of the Kansas City College of Medicine and Surgery, an institution whose charter was revoked by the state of Missouri as an asserted diploma mill, is reported to have pleaded guilty on June 4 in Stockton on a charge of violation of the Medical Practice Act and was “granted probation under suspended sentence.”

An imposing array of witnesses prepared to testify against Dr. Theodore Rodman, graduate of the University of Heidelberg, who, according to the *Los Angeles Record* of June 6, 1928, was to stand “trial on eight counts of grand theft and violation of the State Securities Act.” No one by the name of Theodore Rodman appears as licensed under the Medical Act, Osteopathic Act, or Chiropractic Initiative.

According to an Associated Press dispatch dated Jefferson City, Missouri, May 23, published in the *San Francisco Chronicle* of May 24, “The Missouri Supreme Court today ordered the St. Louis College of Physicians and Surgeons of St. Louis ousted from the state on the ground that it was a medical ‘diploma mill.’”

According to the *San Francisco Examiner* of June 19, Superior Judge Miller has seated Harry P. Fish, D. C., and Claude L. Fishback, D. C., as members of the Board of Chiropractic Examiners, vice Homer Skinner, D. C., and Vernon Y. Malcolm, D. C., who recently brought court action to stay Governor Young’s appointment.

Lui Ton Wah, asserted Chinese herbalist, is reported to have pleaded guilty on June 7 at Stockton on a charge of violation of the Medical Practice Act and was sentenced to 180 days in the county jail suspended for two years on condition that he no further violate the Medical Practice Act.” Report relates that our investigator testified to this Chinaman’s pulse diagnosis in which he found that “my lungs were full of holes and my liver poisoning my system, but that the herbs would cure me.”



# CALIFORNIA AND WESTERN MEDICINE

*Owned and Published Monthly by the California Medical Association*

1016 BALBOA BUILDING, 593 MARKET STREET, SAN FRANCISCO

ACCREDITED REPRESENTATIVE OF THE CALIFORNIA, NEVADA AND UTAH MEDICAL ASSOCIATIONS

VOLUME XXIX  
NUMBER 2

AUGUST • 1928

50 CENTS A COPY  
\$5.00 A YEAR

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# CALIFORNIA AND WESTERN MEDICINE

VOLUME XXIX

AUGUST, 1928

No. 2

## THE RELATION OF CERTAIN INORGANIC ELEMENTS TO LIFE PROCESSES\*

By CARL L. A. SCHMIDT, Ph. D.

Berkeley

THE layman usually associates with the name of foodstuffs those substances of organic nature which, on account of their associated esters, are pleasant to the taste and, due to their bulk, give him the feeling of satiation. Along with the fats, carbohydrates, proteins and vitamins, compounds of an inorganic nature are ingested. These are vital to the growth and maintenance of the body functions. Although they supply us with no energy and are in the main part not decomposed in the body, they nevertheless must be included in the broad definition of food. They are as vital to the needs of the plant as they are to the animal. With the exception of table salt the mineral elements which the body needs are usually found in ample amounts in the ordinary mixed diet.

### FUNCTIONS OF INORGANIC COMPOUNDS

The most evident function of the salts is to maintain the osmotic pressure of the body tissues and fluids. There is also a need for specific ions. Loeb's experiments<sup>1</sup> have shown in a beautiful way the mutual interrelationship of ions which finds expression in the terms "antagonistic action" and "balanced solution." Thus a solution of sodium and potassium chlorid, although isotonic with sea water is nevertheless toxic to the eggs of a little marine fish *fundulus*. Detoxication may be brought about by addition of small amounts of calcium and magnesium chlorid. The inorganic elements also function as the regulatory mechanism whereby the acid-base equilibrium of the body is maintained. The bicarbonates especially serve as the buffers for the maintenance of the constancy of the reaction of the blood stream. This is of special importance when one recalls that a large part of the end-products of metabolism is acid in character.

It is obvious that to a certain extent the needs of the body for certain minerals are predetermined by the character of the food. The carbon compounds which are oxidized in the body to carbonic acid, the sulphur of cystin which yields sulphuric acid and phosphorus in the form of phos-

phoric acid compounds all contribute to end-products which are acid in nature. Carbon dioxide represents but a transitory phase in acidity since it is eliminated as such through the lungs, but sulphuric acid and phosphoric acid both exact a contribution of the body's storehouse of alkali before being eliminated by the kidneys. In diabetes due to the production of unburnable organic acids the alkali reserve is taxed to the utmost. The chief source for the acid formers<sup>2</sup> are substances which are rich in protein and includes meat, eggs, and cereals. The constant demand for alkali to neutralize the acid products necessitates a replenishment and this is likewise supplied by foods. The reservoir for alkali is found in fruits and vegetables. These contain weak organic acids in combination with basic cations (Na, K, Ca and Mg). When ingested the organic acid radical is readily burned, leaving a residue which represents the carbonate or bicarbonate of the cation. The facts may easily be demonstrated experimentally. Orange juice, although acid to the taste, nevertheless yields an alkaline ash by oxidation of the citric acid. The ingestion of orange juice in moderate amounts is one of the best ways of changing the normal acid reaction of the urine to alkalinity. Undoubtedly in a normal mixed diet the acid radicals are in large part neutralized by the ingested base and the resultant ash may be practically neutral. The necessary optimum reaction of the body tissues and fluids is maintained despite large variations in the acid or basic character of the foods ingested. In this process the kidneys play an important rôle by excreting acid or basic elements in excess of the body's requirements.

It has been estimated<sup>3</sup> that the normal mineral requirements of the adult individual per day expressed in terms of N/10 acid is about 150 cc. per day. The fetus shows a marked retention of alkali for about three months prior to birth. This has been estimated to be about 70 cc. N/10 alkali per day. During the period of infancy and childhood the retention of alkali is about 10 cc. N/10 base per day. The retention of base represents calcium storage for the building of the skeletal framework. The chief source for this element is milk. It is found in smaller amounts in most of the foods, especially fruits and vegetables.

### SPECIFIC BODY NEEDS FOR INORGANIC ELEMENTS

The specific needs of the body for the inorganic elements may be demonstrated in a number of

\* From the Division of Biochemistry and Pharmacology, University of California Medical School, Berkeley.

<sup>1</sup> Read before the General Medicine Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

ways and can perhaps be considered best individually.

*Sodium Chlorid.*—The need for this substance is markedly shown by herbivorous animals who travel long distance to obtain salt from salt licks. Carnivorous animals, such as the dog and cat, do not manifest this need since salt is usually associated with their normal diet. There are many examples of the need of salt by man. It is expressed by savage tribes, whose diets are largely vegetarian, in very much the same way as a growing child desires sweets. On the other hand, hunting tribes do not show this intense hunger for salt. Sodium chlorid cannot be replaced by an equal quantity of potassium chlorid. Plants selectively store potassium salts. The giant kelp of the Pacific Coast is filled with crystals of potassium chlorid which it takes out of sea water despite the preponderance of sodium chlorid. Our need for sodium is twofold (*a*) to supply the amount which is daily lost by the body chiefly by way of the urine, (*b*) to act as a balance to the potassium salts. In vegetarians the amount of potassium ingested may be considerable. We probably ingest more sodium chlorid than is necessary to meet the minimum requirements of the body. This excess merely takes an excursion through the body. The adult animal can adjust itself to varying levels of input of substances such as sodium chlorid. When necessity demands, the organism conserves its supply and the excretion is reduced to a very low level. The constancy of the blood composition is, however, maintained. It is particularly during the period of growth that the organism expresses its need for certain elements. Thus in the experiments which were carried out by Osborne and Mendel<sup>4</sup> on rats, the omission of both sodium and potassium was followed by failure to grow. Sodium chlorid is probably the precursor of the hydrochloric acid in the gastric juice. The mechanism of this transformation is, however, not yet clearly understood. The adult animal can live on very low levels of chlorin input by methods of conservation. Its specific need can be demonstrated by withdrawal of gastric juice by way of a gastric fistula. Signs of malnutrition quickly appear.

The apparent specific need of herbivorous animals for sodium chlorid has not been fully explained. Von Bunge put forward the hypothesis that an ionic interchange between sodium and potassium takes place resulting in the excretion of the latter substance. Miller<sup>5</sup> verified this in part by showing that a sudden increase of potassium in the diet led to an increase in the urinary output of sodium chlorid. The increment in sodium chlorid output was not maintained on continued high levels of potassium input. This is again an instance of the body's ability to retain the necessary elements when forced to do so. High levels of sodium chlorid input do not appear to be injurious provided sufficient water is simultaneously ingested to provide for its excretion. Restriction in its intake in pathological conditions

is for the purpose of sparing work for the kidneys.

*Potassium.*—The wide distribution of potassium in the plant kingdom together with the fact that the body's requirements for this element are less than that of certain of the other elements is ordinarily sufficient assurance that the body's needs are amply cared for. Potassium is needed by the body in order to carry on its normal functions. It is significant that muscle contains about six times as much potassium as sodium, and liver about twice as much. In Osborne and Mendel's salt experiments it was found that when sodium and potassium were simultaneously decreased, growth in rats ceased. The subsequent addition of sodium alone led only to slight gain, but when potassium was substituted for sodium rapid recovery took place. Vegetables which are especially high in potassium, such as potatoes, taste insipid without salt. The addition of salt is therefore to widen the range of palatable foods. Certain animals, such as the rabbit, do not exhibit the desire for salt and apparently suffer no inconvenience without it. They must then have a mechanism especially adapted to the selective retention of sodium since the body fluids exhibit no abnormal behavior with respect to the distribution of inorganic elements.

*Calcium.*—Calcium is not only one of the most interesting but also one of the most necessary of the inorganic elements which are required by the animal throughout its life cycle. Together with phosphorus it is used to build up the bony framework of the body. Its need is particularly shown when animals are kept for extended periods on rations which are deficient in calcium. This was clearly indicated in the classic Wisconsin experiments.<sup>6</sup> Groups of young heifer calves were kept respectively on a ration derived from the corn plant, wheat plant and oat plant. At the end of a year the corn-fed group was sleek and in good condition, while the other two groups showed evidences of malnutrition. Calves born from heifers of the corn-fed group were normal, while those born to heifers of the other two groups were born several weeks too soon and rarely survived. Marked improvement was noted when calcium was added to the oat plant ration.

In an extended series of studies Sherman<sup>7</sup> and his coworkers have concluded that about one-half of our adult population is below what he terms the "standard requirement" of calcium (0.68 grams per day), while about 15 per cent fall below the minimum daily requirements of 0.45 grams. Experimental work of the past few years indicates that not only must the body be supplied with an adequate amount of calcium and phosphorus for the purposes of calcification, but that vitamin D must also be included. It appears further that activation of inert lipoids may be brought about by exposure to ultra-violet light. In a study of a squad of prisoners at San Quentin, maintained on a special diet, Clark<sup>8</sup> showed that more calcium was retained when the men were fed on a diet which included vegetables than when these elements were withheld. His experiments disclosed the fact that in all of the experi-



mental diets, calcium was stored, indicating the need of the body for this element. The retention was greatest in certain individuals, who, prior to their arrival at the prison had probably been on calcium-deficient diets. The uniform retention of calcium on the experimental diet appears to indicate a deficiency of vitamin in the regular prison diet rather than a lack of the element itself.

Calcium studies which have been carried out during the period of pregnancy and lactation are particularly illuminating. It has been shown by Forbes during the period of lactation that cows are in negative calcium balance. This loss is subsequently made up during the period of non-lactation and prior to calving. Mr. Goss, at this laboratory, has followed, in a preliminary way, the calcium balances of rats during the period of gestation. Following mating the female stores calcium in an amount which is greater than the calcium content of the fetus at birth. The storage of calcium is evidently for the purpose of meeting the calcium requirements during the period of lactation. In one instance the calcium stored by the young prior to weaning was just equal to that stored by the mother. On the other hand certain animals were found to be in negative balance at the end of the lactation period, indicating loss of calcium from the body's storehouse.

The blood calcium presents an interesting picture. Low calcium figures have been reported in a number of pathological conditions. The gross figures have, however, failed to indicate the true relation between blood calcium and the particular condition in question since it seems quite definitely established that calcium exists in the plasma in several forms. It was shown by Greenberg and Schmidt,<sup>9</sup> some time ago, that solutions of casein in the alkaline earth hydroxids contain not only positive metallic ions and negative casein ions, but also complex ions containing casein and alkaline earth metal which are likewise negatively charged. These experiments have been confirmed and extended by Kirk and Schmidt<sup>10</sup> and by Greenberg. These facts throw some light on the calcium of the blood. Updegraff, Greenberg and Clark<sup>11</sup> in this laboratory have devised a technique whereby the calcium of the plasma may be divided into two fractions, (a) diffusible, and (b) nondiffusible. The diffusible fraction contains calcium in the form of calcium phosphate and also in probably some other as yet undetermined form. The nondiffusible fraction of the plasma appears to represent the calcium which is held in a complex form by the serum proteins.

Extirpation of the parathyroid gland is indicated by a low calcium content of the blood and is followed by tetany. Administration of active extracts of the gland restores the calcium level of the blood to normal. It has been shown by Collip<sup>12</sup> that administration of parathyroid extract to normal dogs leads to hypercalcemia which, if continued, is followed by anorexia, vomiting, apathy, drowsiness verging to coma and failing circulation, and eventually death. The blood calcium may be reduced somewhat by administration of sodium bicarbonate. Now it has

been shown by Shih-Hao Liu<sup>13</sup> that the decrease of serum calcium in tetany is found chiefly in the diffusible form while that in nephrosis and kala-azar, with no evidence of tetany is exclusively in the nondiffusible form. This appears to indicate that it is the diffusible rather than the nondiffusible calcium that is active in the control of neuromuscular irritability. He further found that under the influence of both parathyroid hormone and cod-liver oil the rise of serum calcium is mainly in the diffusible portion. Estimation of the calcium in the several fractions of the blood plasma will serve to give a truer picture of the conditions than the mere estimation of total blood calcium. A few experiments have also been carried out by Greenberg and Ballard on the calcium of the spinal fluid. They indicate that the value is quite constant (5 mgs. per 100 cc.) despite fluctuations in the calcium fractions of the plasma. Evidently the spinal fluid calcium does not represent a true diffusion from the blood stream.

There are several pathological conditions known in which calcium appears to be a determining factor. In osteoporosis there is a shortage of calcium, so that the bone tissue does not grow and may even be absorbed. The need for calcium phosphate is therefore reduced. According to Sherman and Pappenheimer and McClendon,<sup>14</sup> in rickets the bone tissues are starving for phosphate despite the fact that sufficient phosphoric acid may be included in the diet. In rickets the bone tissue grows, but since the osteoid tissue is not mineralized it grows at an increased rate and in a sense compensates by its bulk for its lack in rigidity. Both osteoporosis and rickets may be cured by administration of cod-liver oil (vitamin D) or exposure to ultra-violet rays (artificial or from sunlight). Osteomalacia, a disease of adults, is characterized by softening of the bones, and the latter contain much less than the normal amount of calcium salts. Both the calcium and phosphorus content of the blood may be reduced. Osteomalacia has been associated with large masses of population during periods of famine and hunger.

The relation of calcium to dentition is an important one and there is need for extensive experimental work. The rôle played by vitamin D in mineralization of osteoid tissue likewise awaits a future solution.

*Magnesium.*—This element is found in small amounts in animal and plant cells and in milk. In the plant it is found in combination with chlorophyll. In the body it bears somewhat the same relationship to calcium as potassium does to sodium. More magnesium than calcium occurs in muscles while in the body framework and in the blood the latter element preponderates. About two-thirds of the body's content of magnesium is found in the bones. It seems altogether probable that magnesium also yields complex ions with proteins. Injection of magnesium in considerable amounts leads, as Burnett<sup>15</sup> has shown, to a meta-

bolic disturbance which finds expression in the appearance of sugar in the urine.

*Iron.*—This element is found chiefly associated with hemoglobin, the oxygen-carrying vehicle of the body. Certain of the vegetables, such as spinach, and egg yolk are exceptionally high in iron, while milk is notoriously low. In the grown animal it is therefore important that the milk diet be supplemented with iron-containing foods. Due to the breakdown of cells there is a daily loss of iron from the body. Sherman<sup>16</sup> estimates that the adult requirements for iron are about 10 mgs. per day. The ordinary diet meets this requirement in ample amount. Most animals are born with an extra supply of iron which is sufficient to carry them to the stage of weaning so that, despite the shortage of iron in milk, anemia does not result unless the period of milk feeding is unduly prolonged. The recent extraordinary findings of Hart, Steenbock and their collaborators that copper is essential to the synthesis of hemoglobin places a wholly new aspect on this complex problem. We must await further experimental work before the question as to the rôle which small quantities of this element play can be answered.<sup>17</sup>

The question of the precursors of hemoglobin involves the origin of the pyrrol rings. The precursor may be either chlorophyll, prolin and oxyprolin, or actual synthesis of the ring may take place *de novo*. No adequate experimental procedure has as yet been suggested to elucidate this question. The deficiency lies in obtaining a diet free from pyrrol-containing compounds. McCay's<sup>18</sup> experiments show that the rate of blood regeneration in the rat is independent of the protein level within wide limits providing there is adequate protein for the maintenance of the body. Casein was the protein fed. This may indicate that the pyrrol groups of casein were used for hemoglobin synthesis. It is of further interest to note from McCay's experiments that while the rat is able to synthesize blood quite effectively upon a standard synthetic casein diet, the dog does so only with extreme difficulty.

It has been repeatedly demonstrated that the animal can utilize inorganic iron for hemoglobin synthesis, and McCay's work on the rat also supports this view. The possibility of the irritating effect of inorganic iron compounds upon the intestinal epithelium must be borne in mind.

In lower forms of animal life copper combined with protein in the form of hemocyanin constitutes the oxygen-carrying vehicle.

*Iodin.*—The relation of iodine to the activity of the thyroid gland has been amply demonstrated. The active principle, thyroxine, whose constitution has recently been established by Harrington, contains four iodine atoms in the molecule. Simple goiter is prevalent in regions which are remote from the sea and which, on account of their geological age, have been subjected to extensive glaciation and leaching. This is especially true of our Great Lakes region. The drinking water in this region is especially low in iodine and this, together with the low iodine content of foodstuffs,

is insufficient to meet the requirements of the body. Marine and Kimball's<sup>19</sup> experiments demonstrated that simple goiter can be prevented by administration of small doses of iodine salts. They compared the occurrence of goiter in groups of school children taking or not taking doses of sodium iodide according to a definite protocol. Goiter was prevented in more than 99 per cent of children undergoing the iodine treatment. On the other hand, the indiscriminate use of iodides, especially in large doses is, on account of its pharmacological action, to be avoided.

In pigs, iodine insufficiency leads to the condition of hairless pig malady. It can be prevented by the administration of iodides.

*Sulphur.*—This element occurs chiefly in the form of cystine. It is a constituent of most proteins and is one of the essential amino acids necessary for growth and maintenance. Such substances as hair and feathers are especially rich in cystine. Inorganic sulphates, when administered, cannot replace cystine in the activities of the body. In cystinuria, cystine is excreted in the urine. It can be identified by the characteristic hexagonal crystals. The condition is apparently due to a defect in the oxidizing mechanism of cystine, particularly with respect to the reduction of cystine to cysteine, with the result that endogenous cystine is not oxidized. This necessary step is, in the case of exogenous cystine, apparently accomplished with the aid of intestinal bacteria so that oxidation takes place.

In recent years Hopkins<sup>20</sup> has isolated a compound of glutamic acid and cystine, glutathione, which in its two forms can act as an oxidizing-reducing system (oxygen donor and acceptor).

*Phosphorus.*—Phosphorus is always ingested in the oxidized form and commonly as lecithin, nucleic acid and phosphoproteins, such as casein. It is not only a constituent of the bony framework of the body, but is an essential constituent of the nuclei of cells and of the phospholipoids. It is present in ample amounts in the ordinary mixed diet. The minimum requirements average about 0.9 gram per day. There is very much less danger of phosphorus deficiency than of calcium deficiency.

On the other hand a phosphorus deficiency disease, osteophagia,<sup>21</sup> which manifests itself in bone eating is found in cattle maintained on rations which are grown on soils poor in this element. It may be prevented by proper fertilization of the soil or by shifting the animals to a ration of improved quality.

*Other Essential Elements.*—A thorough search of the body tissues and fluids will probably reveal the presence of small amounts of most of the elements. Fluorine is a constituent of bones, manganese accompanies iron in many tissues, and silicon is an essential constituent of the hair. The latter substances constitute about 40 per cent of the ash of the hair. It is taken into the body in small quantities along with most foods, but how it is transported and later deposited is not known. Cobalt, nickel, zinc and arsenic occur in small



quantities in the body and possibly may play important rôles in functional capacities.

#### INORGANIC ELEMENTS INDISPENSABLE TO LIFE PROCESSES

L. B. Mendel<sup>22</sup> has characterized the inorganic elements as the "little things" in nutrition. Contrasted in a quantitative sense with proteins, fats and carbohydrates, this characterization is undoubtedly true. No doubt, since even these "little things" are indispensable in life processes, what Professor Mendel really meant to emphasize was that these "little things" must take their place along with the big things in nutrition.

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#### TREATMENT OF OBSTRUCTIVE JAUNDICE AND ITS COMPLICATIONS\*

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PROBLEMS in the field of physiology and physiologic chemistry frequently arise during the preoperative and postoperative treatment of patients handicapped by any complicated disease. An understanding of such problems and the corrective measures necessary is often the determining factor in the patient's recovery. Without these the patient may succumb not alone as the result of the disease, but from the complications which occur during the surgical treatment. There are several striking examples of this. One is the reduction of the risk of operations on patients with exophthalmic goiter following the administration of iodine, as suggested by Plummer.<sup>1</sup> In the field of urology the routine preparation of all patients with obstruction from prostatic hypertrophy by the introduction of the indwelling urethral catheter permits complete drainage of the bladder. A consideration of the amount of phenolsulphonephthalein excreted at half-hour intervals and the blood urea nitrogen enables one to determine the extent of the injury to renal function and assists in making the decision as to the best time for surgical intervention. On numerous occasions, clinical investigation has revealed the value of a study of the chemical changes in the blood of patients with obstructive lesions of the stomach. The preoperative replacement in the blood stream of fluids and chlorids which have been lost to the body as the result of vomiting has greatly lowered the operative risk. In postoperative complications in the gastro-intestinal tract, Haden and Orr,<sup>2</sup> McVicar<sup>3</sup> and others have called attention to the early recognition of disturbance of motility in the gastro-intestinal tract by studies of the chemistry of the blood and using the latter as indexes of the condition of the patient, have been able to tide them over periods of toxemia resulting from gastro-intestinal stasis, by replacement of fluids and chlorids.

I wish to call attention to some problems in obstruction of the biliary tract which have arisen during the course of a seven-year clinical and experimental study, as well as in the handling of a group of sixty-seven patients with various types of obstruction of the biliary tract, on whom I have operated during the last three years. Included in the group are forty patients from whom stones have been removed from the common and hepatic bile ducts. Thirty-eight of these have had excellent results from the operation without any further evidence of biliary tract disease. Good results were obtained in the other two cases although transient jaundice or fever without pain have occurred on one or two occasions over a period of two years. Sixteen patients have been operated on for strictures of the common and hepatic bile ducts of whom fourteen are living and

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\* Read before the California Medical Association, in General Meeting, at the Fifty-Seventh Annual Session. April 30 to May 3, 1928.

free of jaundice. Only one of the two deaths in the series occurred in the hospital subsequent to operation. The other occurred from unknown cause a year after the patient (a woman aged sixty-four) returned home. In eight patients intensely jaundiced as a result of tumors at the head of the pancreas, short circuits have been made between the distended biliary tract and the intestine or stomach for the relief of obstructive jaundice. Six of these are living, free of jaundice and of itching, and are working. Twenty-eight months have elapsed since cholecystogastrostomy was performed on one of this group.

Before the inauguration of the present-day methods of preoperative preparation of jaundiced patients, the risk of operation was abnormally increased from hemorrhage. With the development of a method of preventing postoperative bleeding by the intravenous injections of calcium chlorid as described by Bell<sup>4</sup> and Walters<sup>5</sup> in 1921 the mortality rate has been reduced to within reasonable limits; at present in the clinic it is well below 10 per cent in the group of deeply jaundiced patients. The Van den Bergh<sup>6</sup> method, which gives an exact measure of the amount of bile pigment in the blood stream, has assisted materially in the determination of the propitious time for operation. In general, it may be said that operations should be delayed when the bile in the blood serum is increasing. Sometimes this rule is followed with difficulty, but experience has shown that an operation at such a time is performed with great risk even though the biliary obstruction is successfully relieved. When the jaundice is decreasing, however, the patient withstands operation almost as well as though it had not existed. With the patient in good condition and the amount of bile in the blood serum decreasing, it is often advantageous to wait until the decrease reaches its lowest level before instituting surgical treatment.

#### STONES IN THE COMMON AND HEPATIC DUCTS

Approximately a third of the patients with stones in the common and hepatic bile ducts are not jaundiced at the time they seek treatment. The explanation for this probably lies in the resiliency of the common bile duct. Such stones can usually be recognized by palpation of the common bile duct which should be done as a routine procedure during operation as is palpation of the gall bladder. Fortunately when stones exist in the common or hepatic ducts the caliber of these ducts is considerably enlarged. The wall is usually thickened and often changed in color from the normal bluish green to nearly white. With the history of biliary colic followed by jaundice or accompanied by chills and fever, and with the finding of an enlarged common bile duct even though stones cannot be felt, it should be opened and explored with scoops. In most instances stones will be found floating in the bile in the duct. In cases of obstruction to the common and hepatic ducts due to stones, if the stones are entirely removed, convalescence is smoother than in other cases of biliary obstruction. If a stone is

left in a duct, jaundice and irremediable bleeding is likely to occur, and the patient may succumb.

Bearing out the statement that this is the most successful group of cases in which to operate, is the fact that of the forty patients operated on during the last three years for the removal of stones from the common and hepatic bile ducts, thirty-eight secured excellent results. A period of more than two years has elapsed since twelve of them were operated on.

#### STRICTURES OF THE COMMON BILE DUCT

Successful operations with lasting good results in cases of strictures of the common bile duct are dependent on there being sufficient normal duct remaining above the stricture to permit an exact anastomosis between the duct and the duodenum. This method of direct anastomosis and the importance of establishing a mucous membrane to mucous membrane union between the stump of the duct and the duodenum was first described in 1905 by W. J. Mayo.<sup>7</sup> Reference will be found in the literature to the successful use of this method in numerous patients who have remained well for many years.

I recently had occasion to reexamine a patient on whom I had made this anastomosis for a stricture of the lower third of the common bile duct more than eighteen months previously. At the time of operation, May 15, 1926, the patient was intensely jaundiced, with a serum bilirubin of 17.4 mg. for each 100 cc. of blood. A duodenal fistula developed during the first few days following operation. The accompanying toxemia was controlled by intravenous injections of physiologic sodium chlorid solution and the fistulous tract was kept dry by the suction pump. There was no further disturbance of the biliary tract.

Occasionally one finds that stricture involves the entire length of the common and hepatic ducts so that there is not a sufficient amount of duct remaining below the level of the liver to permit anastomosis with the duodenum. Such cases furnish a difficult surgical problem. Recent reports, however, of successful transplantation of external fistulous tracts into the duodenum or stomach by Lahey,<sup>8</sup> Masson,<sup>9</sup> Lilienthal,<sup>10</sup> St. John,<sup>11</sup> and Walters,<sup>12</sup> following the first successful case reported by Williams<sup>13</sup> in 1914, have served as an impetus to the use of the method when complete stricture of the extrahepatic biliary ducts exists. In general, the scheme is to establish an external biliary fistula and after it has persisted long enough to become established (usually from two to four months), the tract is coned out and transplanted into the duodenum or stomach. The ease with which such a coned-out fistulous tract can be transplanted into the duodenum is surprising.

#### COMPLICATIONS FOLLOWING OPERATIONS FOR STRICTURE OF THE COMMON BILE DUCT

In transplanting the remaining stump of the common bile and hepatic ducts into an opening in the duodenum the postoperative complications which are most likely to occur are duodenal fistula, accumulation of bile around the liver and subphrenic abscess. The complications occur but



rarely and only if the patient's general condition is poor and the healing capacity has been reduced as the result of prolonged biliary obstruction and jaundice.

The blood picture of clinical and experimental duodenal fistula is characterized by a drop of the chlorids of the blood, a rise in urea and in the carbon dioxide combining power of the blood, as shown clinically and experimentally by Bollman and Walters.<sup>14</sup> This can be adequately controlled by intravenous injections of a sufficient quantity of physiologic solution of sodium chlorid. It is advisable to keep the fistulous tract dry by some form of suction apparatus.

A few months ago, in a case in which choledochoduodenostomy had been performed for stricture of the common bile duct, all the symptoms of shock developed six hours following operation. The clinical picture in this case was characterized by a rapid rise in pulse rate, drop in blood pressure, and increase in respiratory rate. Although the operative site had been drained at the time of operation, sufficient outlet had not been provided and when the wound was opened in the patient's room, from 500 to 700 cc. of bile escaped from the space between the liver and diaphragm. Following this the pulse rate dropped from 170 to 115 within two hours. Other evidence of improvement was immediate and from then on recovery was uneventful. Experimentally, Bollman<sup>15</sup> and I were able to show that as a result of bile between the liver and diaphragm, the liver was depressed sufficiently to interfere with circulation to the inferior vena cava from the hepatic vein. This produced the rapid rise in pulse and respiratory rate and drop in blood pressure. When the factors causing displacement of the liver were removed immediate return to normal occurred. Thus the results in our experiments were similar to the postoperative condition in the patient mentioned.

When fever persists longer than is reasonable in cases in which operation has been performed for stricture, cholangitis or subdiaphragmatic abscess is usually the cause of the trouble. With cholangitis there is often an increase in the depth of jaundice, but in subdiaphragmatic abscess the picture is one of localized infection. In a recent case the persistence of fever over a period of two or three weeks subsequent to the healing of the wound and the complaint of pain in the region of the liver and in the right shoulder led to reopening the abdomen and the evacuation of a small abscess cavity which existed between the liver and the diaphragm and which contained from 120 to 180 cc. of inspissated pus. Drainage of the abscess and irrigation of its cavity resulted in the disappearance of fever. Normal convalescence followed.

#### TUMORS AT THE HEAD OF THE PANCREAS

No one is infallible in the diagnosis of causes of obstructive jaundice. Moynihan<sup>16</sup> put the case concisely and accurately when he said, "No matter how certain the diagnosis of malignancy may be, it is advisable to subject the patient to an explora-

tory operation. The chances of a life saved are so great that the risk of exploration is justified."

In 66 per cent of all persons the common bile duct passes through the substance of the pancreas before entering the duodenum. A carcinoma or inflammatory tumor in the pancreas may compress the common bile duct sufficiently to produce progressively increasing jaundice. In most of these cases the jaundice is accompanied by uncontrollable itching which is so constantly intense that the patient is glad to go to any end to be relieved. Moynihan<sup>16</sup> put it aptly when he said that in his opinion the incidence of suicide in such cases because of the itching is as great as the deaths from operation.

An anastomosis between the distended biliary tract, usually the gall bladder and the stomach or duodenum, produces a short circuit of bile into the intestinal tract with a relief of jaundice. If the obstruction is benign or inflammatory, permanent beneficial result is obtained; if it is due to pancreatic carcinoma, the jaundice and itching are relieved. Although he eventually succumbs to the effects of the malignancy, yet he is able to enjoy many months of comfortable existence in the interim. If a tumor is found at the head of the pancreas, the surgeon, in most instances, is unable to distinguish between an inflammatory and a malignant lesion. To remove a piece of the pancreas for microscopic diagnosis may satisfy curiosity, but it is accompanied with the danger of producing almost uncontrollable bleeding or of leakage of pancreatic secretion into the abdomen.

The beneficial results obtained from an anastomosis between the distended biliary tract and the intestine in cases of pancreatic obstruction of the common bile duct are often startling and prolonged. In a group of eight such cases six patients are living and well, free of jaundice and itching. One of them has lived more than two years since the operation. From recent examination and from information received in letters from him, his general condition is apparently satisfactory. One of the patients died on the seventh day subsequent to the operation with a clinical syndrome which was believed to be a combination of hepatic and renal insufficiency characterized by stupor and then coma, decrease in urinary output and retention of 200 mg. of urea in the blood. Necropsy did not reveal anything to explain the cause of death other than a small amount of localized peritonitis.

The anastomosis between the distended biliary tract and the intestine should be made as large as possible in order to obtain complete and immediate relief of the biliary obstruction, and so that not even temporary or incomplete obstruction is possible from edema and swelling about a small anastomosis.

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## ELECTRIC SHOCK

WITH REPORT OF AN UNUSUAL CASE

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THE subject of injury produced by currents of electricity passing through the body attracts the attention of the industrial surgeon; of the medical examiners of accident insurance companies; less often that of the general practitioner; and only occasionally is a case referred to the neurologist.

The case reported at the close of this article, however, has two features of neuropsychiatric interest, and seems worthy of the somewhat detailed description given.

The literature on the subject of electric shock is scanty, and is largely to be found scattered in brief reports and small paragraphs. England has produced a much more extensive literature than the United States, including at least one standard textbook; and Dr. Willem Einthoven of the University of Leiden received one of the Nobel prizes

of 1925 for his contribution to the general subject under the title, "Electricity and Nerves."

Since the subject has a threefold interest and appeal, namely—to the medical profession, to the scientific and engineering group, and to industrial concerns, the appointment of the "Commission on Electric Shock" was a logical step. This was composed of representatives of the American Medical Association, the American Institute of Electrical Engineers, and the National Electric Light Association. Nearly a year was devoted to an investigation of the subject, and a handbook and chart, with rules for the resuscitation of victims of electric shock was issued. These rules have been in large demand for distribution to workmen and for display in factories.

The government of Canada has adopted the rules officially, and has called the attention of all Canadian railways to them. Authority has been given for reprinting the same in several foreign languages.

It is estimated that these rules have been printed either in full or in abridged form about five million times. They may be obtained from the National Electric Light Association, and form a worthwhile addition to the library of any physician.

A humanitarian work of such scope, tending to prevent accidents and to save life, is deserving of more than passing mention. The valuable results to be secured through coöperation between the medical profession and enlightened business men are here well exemplified.

### SUMMARY OF URQUHART'S REPORT

Some valuable experimental work done in this field by R. W. I. Urquhart has been reported in the *Journal of Industrial Hygiene*.

The summary of this article deserves to be quoted in full.

"1. The experiments herein described confirm the deductions of previous observers as to the cause of death in electric shock, namely, that it may be due to primary cardiac failure, to primary respiratory failure, or to a combination of both.

"2. In laboratory animals, when the current traverses the body from the head to a hind limb, about 45 per cent of the deaths are of purely cardiac origin. The remainder of the deaths occur because of failure of the respiratory movements.

"3. In these, as in the group in which the current is passed directly through the brain, a condition of profound paralysis or block becomes established in the respiratory, vagus, and vasomotor centers.

"4. That the block involves these centers is shown by experiments which demonstrate clearly the absence in electrocuted animals of reflex effects normally functioning through them. Since the nerve centers become insensitive to extraneous influences counterstimulation is not an aid to recovery.

"5. No definite histologic changes can be made out in the brain to account for the symptoms. The capillary hemorrhages which occur do not appear to be significant.

"6. The foregoing experiments also show defi-



nately that when the electric current does not cause charring of nerve structures the paralysis or block is recovered from and the reflexes return, provided efficient artificial respiration is applied.

"7. It is of the greatest importance that artificial respiration be applied early and be maintained for a sufficient length of time. Owing to the nature of the block in the nerve centers the ordinary tests for death should not be accepted and 'nothing less than cooling of the body or the onset of rigor mortis should be considered to be evidence of death.'"

In regard to time during which artificial respiration should be carried out, Tousey in the *International Journal of Medicine and Surgery* states that three hours should be a minimum. He calls attention to the fact that even where apparently instantaneous death has occurred, resuscitation methods may succeed if persevered in for a sufficient length of time. He further states that a 110-volt current may be fatal if the person is grounded, and that voltages higher than this are dangerous under all circumstances.

A special interest attaches to this hazard because it is a preventable one, and seldom can the fatality or injury be classified as due to an "act of God." The carelessness of workers, the absence of safety devices in connection with machinery and the distribution of power are responsible for the vast majority of casualties.

#### CASE REPORT

The case which is here reported is that of a young man of twenty-four, in good physical condition, height 6 feet and 2 inches. He was employed in wiring the switchboard in a smelter connected with the United Verde Copper Company. Through some mischance a current was short-circuited from one hand to the other while he was changing the leads from a current transformer. He stated that the current was of low amperage, though varying somewhat from time to time. The voltage was not a fixed quantity, but started very low, and gradually increased after the circuit was closed, a maximum of 1000 or 1500 volts being possible.

The patient's description of his sensations and his psychological reactions was of great interest to the examining physician. The first sensation noticed was of a terrible crushing pressure, not translated into pain, as the word is ordinarily used. This affected the entire musculature, but was most marked in the arms and shoulders—the current passing through the hands and across the body. No sensation of heat or burning such as is frequently mentioned by the subject of electric shock was noticed.

Simultaneously with the sense of crushing pressure occurred a tremendous stimulation, both mental and physical, beyond anything in the patient's experience, and accompanied by a great surge of elation and a vast sense of power.

The next item noted was disturbance of vision, with various colors whirling more and more rapidly before the sight. From the description given these sensations and images were similar to those occurring in the early stages of chloroform anesthesia. Progressive loss of vision accompanied these sensations, ending in complete blindness while consciousness was still present and unimpaired.

Loss of ability to hear outside noises was accompanied by a sensation of hearing a loud humming or whirring noise. This noise the patient said was already associated in his mind with a current of the same frequency as the one passing through his body, under circumstances rendering it audible, and the question whether it was subjective or objective arose

in his mind. Complete unconsciousness gradually supervened.

The time that elapsed before the man was released from the contact by a fellow workman who happened to approach is not known. The patient on regaining consciousness was entirely clear mentally and was able to swear vigorously at a worker who was nearby when the accident occurred and who had stood incapable of action and rooted to the spot, with his mouth open and with a horror-stricken countenance.

The patient, during the stage of seconds or minutes—he had no knowledge of the passing of time—was sure that death was at hand, but felt no fear whatever. He was conscious only of a mighty rage directed at the paralyzed man who stood in the line of his vision without making a movement to rescue him. The patient, of course, could not speak nor express his inward rage as he gazed.

The first after-effects noticed were extreme pain over the brachial plexus on each side, radiating over the area supplied by the plexus. This burning pain prevented sleep entirely for several nights, and continued uninterrupted, but with gradual diminution, for three weeks or more. About four days after the injury, blisters appeared, and a herpetic eruption followed, covering an area of not less than 100 square inches, on either side of the thorax, and almost meeting in front. This was not quite symmetrical, the upper margin on one side being somewhat higher than the other. The pain, however, seemed to the patient to cover exactly the same area on each side. This herpetic eruption lasted about three weeks, and gradually faded away, as in herpes from any cause.

There was no pain on breathing or coughing. The pain caused by using the arms was severe, but not unbearable, and the man resumed his work the next day, but spent several nights walking the floor, unable to sleep on account of pain.

The muscles of the arms and chest were exceedingly sore to the touch for some three or four weeks, but gradually became entirely normal.

The only local effect on the hands, which were not painful, was that a small core of entirely carbonized flesh sloughed out of a cylindrical matrix on one finger of each hand, the right hand preceding the left by a few days. The skin was not discolored on the hands or arms, nor elsewhere except as normally follows a herpetic eruption.

There was no permanent impairment of function in any way nor did the general health appear to suffer. No residuum exists, after a period of several years, except that the patient feels a wave of anger still when he thinks of the vacant countenance of his fellow worker, which he thought was the last sight his eyes would behold on this earth.

851 South Grand Avenue.

#### MANAGEMENT OF HEART CONDITIONS IN CHILDREN\*

By ALFRED J. SCOTT, M. D.  
Los Angeles

**B**ETWEEN eight and nine thousand children in Los Angeles public schools suffer from heart trouble in some form. These cases had been handled in a rather haphazard manner with nothing accomplished from a constructive standpoint. In the spring of 1925 the Director of Health and Physical Education of the Los Angeles public schools called together a few men interested in heart conditions in children, to formulate a plan to give these children with heart disease

\* A review of the work done by the Consulting Heart Board of the Los Angeles public schools.

\* Chairman's address, Pediatrics Section, California Medical Association, at its Fifty-seventh Annual Session, April 30 to May 3, 1928.

in the public schools the opportunity of getting physical education as well as mental training. As a result of this conference a board of five members was formed, which started functioning in 1925. The children were referred by the school physicians or the school nurses for diagnosis and recommendations. The board is now in its third year and accomplishing some important things, which may be worth reporting. The personnel of the board has been increased to nine members, meets once a week and examines from twelve to fifteen children each time.

The children examined are from families who have no family physician, or whose financial status does not permit the services of a private physician or who wish diagnosis from the heart board. If difference of opinion arises between the school physician and the family physician the board acts as arbiter. The board invites consultation with the man in family practice; the members serve without compensation and are endorsed by the Los Angeles County Medical Association.

The children we see are from five to eighteen years of age, because no child is examined who is not in school. The years of athletics, particularly of the athletic competitive type, are the years when real or suspected cardiac cases are discovered.

#### TYPES OF CASES

Types of cases referred to the board comprise four general groups: (1) normal hearts with functional disturbances, (2) congenital heart disease, (3) potential cardiac disease, (4) definite cardiac disease.

Under functional disturbance are classified:

1. (a) The slight arrhythmia seen so frequently in the growing child; (b) the tachycardia of the child with an unstable nervous mechanism which is caused at the time of puberty or even before, by the slightest exertion or nervous excitement; (c) the faint hemic murmur that is heard at some point over the heart but that changes or disappears entirely upon changing position; (d) the murmur brought on by overfatigue from excessive school work, or late hours, or by an excessive use of tea or coffee.

2. The child with the congenital heart may have a basal murmur with a thrill and no other signs or symptoms, or have cyanotic clubbed extremities with more or less of a basal murmur.

3. The potential cardiac patient, and by this is meant the child with a history of frequent attacks of rheumatism, tonsillitis or chorea, who has a slight cardiac hypertrophy and possibly a faint murmur at the apex which is transmitted toward the axilla, but whose x-ray and electrocardiograph show no marked changes in the size of the heart or the muscle conductivity.

4. The true cardiac patient is interesting by reason of the variety of the lesions met, from the faint mitral systolic blow with a definite increase in the size of the left ventricle, to the heart with involvement of most of its valves, marked hyper-

trophy and even in some cases dilatation with edema of the extremities.

We find a number of children around the ages of 12 and 15 who show signs of definite mitral stenosis. The clinical signs may be slight in earlier years, but as the child is watched through the months the symptoms become more definite. We have seen six or seven boys with true aortic regurgitation, increased left ventricular dullness and the diastolic note over the sternum around the third rib, the Corrigan pulse with pistol shot sound heard in the groin and a palpable pulse in the ankle.

One boy had a definite aortic stenosis with the anacrotic pulse and a systolic blow over the aortic area and left ventricular hypertrophy. We have had one case of dextrocardia with chronic endocarditis superimposed. We see many children with mitral insufficiency in various stages of compensation, many well compensated.

Each child is examined by two or more members of the board. Every child, who has not a normal heart, has an electrocardiograph tracing made and an orthodiagram made. He is returned in one week from the first examination for a second examination and a study of the laboratory reports. Cases that warrant a blood count, urinalysis and blood pressure study, have on this second visit all of the findings correlated and a final diagnosis recorded. Instructions are given to the child, to his parents and to the principal of the school he attends. A copy of the findings is sent to the school physician.

#### PROGNOSIS

The outcome for these heart cases depends upon the type, causes, age when discovered and sex.

The child with the congenital heart, associated with clubbed fingers and cyanosis of variable degree, needs watching and protection from heart strain. The child with a congenital heart lesion, found to be symptomless otherwise may lead a natural life and indulge in normal physical activities. For reasons of safety, competitive athletics are debarred.

The type of lesion and condition of the heart muscle determine the prognosis of acquired lesions. The future happiness of the child depends upon early discovery and proper care of the heart lesion. As the child grows older, providing no new infection sets in, the heart will gradually outgrow some of the defects, in fact may even completely obliterate the clinical signs. At puberty the strain sometimes tells severely, especially on girls. The girl may pass this period with no trouble at all and develop into a normal young woman. The question of future marriage and pregnancy will depend largely upon the care given during the earlier years of heart trouble. Building up a strong body and heart with avoidance of further infections will prepare these girls for their future duties as citizens.

The boys will usually make their way in life through their mental rather than their physical powers. Whatever they do physically must be



within their strength and their strength will be the capacity of their heart muscle.

#### TREATMENT

*Rest.*—For any tired or overworked muscle rest is essential. The heart is no exception. Rest may mean only restriction of physical activities, a sitting period after a certain amount of exercise, or lying prone in bed for a definite period. Heart fatigue shows itself by breathlessness upon exertion with rapid pulse rate which is slow to return to normal; pallor or cyanosis; sweating upon exertion out of proportion to the amount of effort expended and by decompensation with edema. Rest has accomplished the desired effect when, after a definite period, the heart shows an ability to function with apparent ease.

*Diet.*—The diet is important. It must be nutritious, contain vitamins and allow for growth. It must be palatable, as many of these children have poor appetites, especially if there is any decompensation. It must have sufficient roughage and yet avoid excessive gas production.

Waste material is cared for by daily baths, proper diet and plenty of water.

*Exercise.*—Activities may be graded according to the case. For the bedridden child we use passive motions and massage. These stimulate the skin and muscles, improve circulation in other parts and aid in elimination of waste products. For the less severe case, walks on level floors or the ground are prescribed. As soon as the child feels fatigue he should stop at once. The child who has only slight damage of the heart may climb stairs, the number of flights and the rate of ascent depending upon the cardiac reaction.

For many cases we advise corrective gymnastics under supervision, as calisthenics, setting-up exercises and finally regular gymnasium work.

We do not recommend any competitive athletics for children with any form of heart disease. Some of our colleagues permit these competitive games but they are doing so with the child under their direct supervision. We, as a heart board, are accountable to the Board of Education, and as a board cannot assume such responsibility, no matter what our individual opinions may be. It is true that as a muscle is exercised so it will develop. The same applies to the cardiac muscle provided no infection is present. All infected foci, infected tonsils, adenoids, sinuses, and carious teeth should be removed as potential sources of reinfection of the heart.

Exercise must be gradual and be increased as the heart muscle strengthens. The stronger the muscle, the more work it can do. The loudness of the murmur does not denote the severity of the lesion. The size of the heart does not denote its strength.

Functional hearts, so-called, are treated by proper rest periods, nutritious foods, and if exercise is indicated such is given under supervision. At times when the nervous system is unstable, as at the time of puberty, where the glands of internal secretion have not completely coordinated, the heart may show signs of irritation, as in the tachycardia of the adolescent thyroid.

Such irritability will gradually correct itself under proper care. These cases are not true cardiac cases.

When there is high blood pressure, and this may occur even in children as young as 14 years, the cause must be determined. Meantime, physical activities should be curtailed. A lessening of activity may prolong life.

Valve disease, as aortic and the early mitral stenosis will have less cardiac embarrassment with lessened physical activity.

Every case must be graded and directed individually. There are only a few blanket rules or directions, as noted above. Youth has wonderful reparative powers. Nature unaided will do her best to heal; aided, she frequently effects a cure.

The cardiac patient must not be alarmed but must be warned that caution is necessary. Every effort must be made to avoid making invalids out of normal children merely because a faint functional murmur is heard over the heart area, during adolescence. These children have no cardiac pathology and we must assure them that no pathology exists.

Much needless mental distress may be avoided by care in diagnosis; much physical suffering avoided by care in treatment. Cheerfulness on the part of attendants, in the surroundings, good hygiene, good food and something to occupy the mind, are all most useful aids.

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## THE PROTEIN TEST FOR UREA-FORMATION FUNCTION OF THE LIVER\*

A REPORT OF THE COMPARATIVE VALUE IN HEALTH  
AND DISEASE

By E. H. THEIS, M. D.  
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PROGRESS in the diagnosis and treatment of hepatic disease necessarily depends upon not only an accurate knowledge of the anatomy and physiology of the liver in health and disease, but also upon a knowledge of the reserve functional capacity of the organ. As details of the mechanism controlling normal physiological activity come to light, attention becomes more directly focused on the changes produced in disease.

#### DETERMINATIONS THROUGH RECENT LABORATORY METHODS

In more recent years laboratory methods by which these early hepatic changes may be estimated have been attempted with some disappointment. This, however, is not without explanation, inasmuch as the liver is concerned in intermediary metabolism and like the kidney, has great reserve potentialities. The problem is still further complicated by the fact that when the liver is removed experimentally Fiske and Sumner<sup>1</sup>

\*From the Medical Service, Letterman General Hospital, San Francisco. By E. H. Theis, M. D., First Lieutenant, Medical Corps, United States Army. Published with permission of the Surgeon-General, United States Army, who is not responsible for any opinion expressed or conclusions reached herein.

\*The author wishes to state that much credit for this work is justly due Major W. S. Shields, Chief of the Medical Service, whose many suggestions and constructive criticisms have been a constant source of inspiration.

TABLE 1—GROUP 1. Patients Whose History or Physical Findings Indicated Evidence of Liver Involvement.

| AGE | CASE              | DIAGNOSIS                   | TEST-MEAL       |                        | VAN DEN BERGH                               | REMARKS                                         |
|-----|-------------------|-----------------------------|-----------------|------------------------|---------------------------------------------|-------------------------------------------------|
|     |                   |                             | Fasting Urea N. | 4 hr. Urea N. Increase |                                             |                                                 |
| 24  | 1. R. G. (7/15)   | Hepatitis, acute, catarrhal | 8.              | 14.2                   | Direct x Indirect xx                        | Jaundice 18 days duration.                      |
| 24  | 1. R. G. (7/25)   | Hepatitis, acute, catarrhal | 9.5             | 9.5                    | Direct x Indirect xx                        | Jaundice 28 days duration.                      |
| 24  | 2. C. B. (8/24)   | Hepatitis, acute, catarrhal | 12.5            | 15.5                   | Direct xx Indirect x                        | Jaundice 60 days duration.                      |
| 28  | 3. R. W.          | Hepatitis, acute, catarrhal | 12.6            | 14.6                   | Direct xx Indirect xx                       | Jaundice 19 days duration.                      |
| 47  | 4. G. B. (7/20)   | Hepatitis, acute, catarrhal | 7.1             | 8.                     | Direct xx Indirect xx                       | Jaundice 20 days duration.                      |
| 47  | 4. G. B. (8/3)    | Hepatitis, acute, catarrhal | 7.1             | 9.6                    | Direct xx Indirect xx                       | Jaundice 33 days duration.                      |
| 31  | 5. D. D.          | Cholecystitis, chronic      | 11.5            | 13.7                   | van den Bergh neg.                          | Diagnosis confirmed by operation.               |
| 34  | 6. J. A. (8/12)   | Pancreatitis, chronic       | 13.3            | 27.2                   | Direct xx Indirect xx                       | Attacks of nausea and vomiting after food.      |
| 19  | 7. J. D. (8/19)   | Hepatitis, acute, catarrhal | 10.5            | 15.                    | Direct xx Indirect xx                       | Jaundice 33 days duration.                      |
| 49  | 8. W. C.          | Cholecystitis, chronic      | 7.9             | 11.4                   | Direct xx Indirect xx<br>van den Bergh neg. | Jaundice 40 days duration.                      |
| 56  | 9. P. F. (10/7)   | Carcinoma of gall bladder   | 10.0            | 13.0                   | Direct and Indirect 8 U.                    | Icterus Index 93. Rosenthal 12% retention 1 hr. |
| 30  | 10. P. F. (11/19) | Carcinoma of gall bladder   | 12.0            | 13.0                   | Direct and Indirect 22 U.                   | Ate only ½ gm. per kilo.                        |
| 30  | 11. A. L.         | Hepatitis, acute, catarrhal | 13.04           | 13.6                   | Direct and Indirect 8 U.                    |                                                 |
| 52  | 12. R. C.         | Hepatitis, arsenical        | 12.5            | 15.0                   | Direct and Indirect 10 U.                   |                                                 |
| 23  | 13. R. J. (12/23) | Hepatitis, arsenical        | 17.4            | 21.4                   | Direct and Indirect 33 U.                   | Rosenthal 14% retention 1 hr.                   |
| 23  | 13. R. J. (2/3)   | Hepatitis, arsenical        | 16.5            | 42.8                   | Direct and Indirect 1 U.                    | Jaundice cleared up.                            |
| 19  | 14. A. S.         | Hepatitis, acute, catarrhal | 15.             | 22.2                   | Direct and Indirect 31 U.                   |                                                 |
| 39  | 15. A. A.         | Hepatitis, syphilitic       | 14.6            | 17.6                   | Direct and Indirect 1 U.                    | Rosenthal 17% retention 1 hr.                   |

\* Reg.—1 gm. protein per kilo body weight in form of ground fried steak (19.5% protein).

\* Spec.—One-half of required protein in form of egg white and cottage cheese. The other one-half as above.

found that glycocholate injected into the circulation of the dog was partially removed as urea. It is uncertain, therefore, whether a considerable part of the total urea synthesized from ingested protein normally occurs in parts other than the liver, or whether this process is taken up elsewhere only when the liver begins to fail. Van Slyke<sup>2</sup> believes that when, in the metabolism of protein, the liver fails to desaturate itself as rapidly as the blood amino-acid enters it, the kidney assists by excreting amino-acids unchanged. Cohn and Levine<sup>3</sup> have described a test whereby the functional capacity of the liver is estimated in terms of blood urea nitrogen after the ingestion of a test-meal of protein following a period of fasting. Van Slyke<sup>4</sup> produced a consistent curve, feeding fasting dogs specific quantities of protein, and plotting the time in hours against the blood urea nitrogen in mgms. per 100 cc. The former authors worked with children and the latter with young carnivorous animals in both of which all parenchymatous organs are prepared to metabolize at a higher degree of efficiency than in adult man. The clinician has been baffled by the problem of estimating hepatic damage and has enthusiastically turned an attentive ear toward the Rosenthal test, the Glucose Tolerance test, the Urobilin test, the van den Bergh test, and others.

THE PROTEIN TEST FOR UREA FORMATION

Is it probable that with the protein test for urea formation as described by Cohn<sup>3</sup> we have another valuable addition to our armamentarium whereby we may estimate one of the many phases of hepatic function? Questioning the value of such a test in view of work previously referred to, but being eager to accept any procedure which might give more information about hepatic function we began to try this test. To date we have three series of cases: *viz.*, (1) those showing clinical signs of liver damage in which there was either a positive van den Bergh or a large liver; (2) cases in which there were no clinical evidences of liver disease; (3) cases which presented no liver pathology but which presented gastro-intestinal irregularities. In order to still further assure ourselves that we were not including pathological cases in the second group, we used, where possible, young men who were being hospitalized for complaints not referable to the gastro-intestinal tract. We felt this would give the test a fair chance to demonstrate the range of variation among normal livers. In order to compare our work with that of Cohn and Levine the test-meal of one gram of protein per kilo body weight was given. The authors used the white meat of chicken, considering this preferable to either the dark meat or to ground steak on account of the higher fat content of the latter and consequent slower emptying of the stomach.<sup>5</sup> We have tried both chicken and ground steak.

PROCEDURES USED IN THESE OBSERVATIONS

After experimenting a bit we decided on the following procedure: In the first series of cases no breakfast was taken. The patient reported to



the laboratory at 7 a. m. for a fasting blood urea nitrogen, to then return to his ward where he ingested one gram of protein per kilo body weight. Blood was again taken four hours later for estimation of urea nitrogen. In this series we began using protein in the form of ground fried beefsteak. Some of the patients were bed-fast and jaundiced and we experienced considerable difficulty in getting them to take such massive quantities of meat. (Meats average 20 per cent protein. A man weighing 70 kilos must take 350 grams of meat to yield one gram protein per kilo.) Patients took the meal only under duress and with some occasional nausea. Several of the more delicate individuals found it impossible to eat more than one-half the required amount. It, therefore, seemed logical to substitute egg white and cottage cheese for one-half of the required protein, thereby giving the patient a less repulsive meal.

COMMENTS ON GROUP 1 CASES

With the exception of Case No. 1, R. G., and Case No. 6, J. A., it seemed that our findings were in accord with what has been described in cases of liver damage; *viz.*, a four-hour blood urea nitrogen which did not increase as much as 50 per cent over the fasting urea nitrogen.<sup>3</sup> We, therefore, decided to further prove the accuracy of the test by running a series of cases which clinically showed no evidence of hepatic disease. In this group we modified our routine by allowing an early non-protein breakfast consisting of a cup of black coffee with sugar and one piece of zwieback. Blood urea nitrogen was taken at 8:30 a. m. and the protein test-meal was given at 9 a. m. It was found that the larger quantities of meat were much better tolerated at this hour. We also attempted to follow the blood urea nitrogen curve six hours as well as four hours after the meal, it being previously assumed that at six hours the curve would be on its downward course.<sup>4</sup> However, as our figures will show, such was not the case, for at six hours the urea nitrogen was generally found higher than at four hours, suggesting that in the adult, digestion, absorption, and assimilation are much retarded when compared to that of the child or puppy.

COMMENTS ON GROUP 2 CASES

The second group comprised those cases which we believed to be free of any liver or gastrointestinal pathology. It is this group that should demonstrate the standard finding in normal livers which has been stated as follows:<sup>3</sup> "After a protein meal of one gram per kilo body weight the blood urea nitrogen will increase at least 50 per cent to 70 per cent above the fasting level in four hours. In case of liver injury this increase of the blood urea nitrogen after a protein meal is much diminished, usually below 50 per cent and sometimes an increase does not result in four hours."

Unfortunately, these individuals not only do not fall into this range, but what is still more dis-

TABLE 2—GROUP 2. Patients Who Showed No Clinical Evidence of Liver or Gastro-Intestinal Disease.

| AGE | CASE     | DIAGNOSIS                         | Fasting Urea N. | 4 hr. Urea N. | Per Cent Increase | 6 hr. Urea N. | Per Cent Increase | TEST-MEAL                  | REMARKS                   |
|-----|----------|-----------------------------------|-----------------|---------------|-------------------|---------------|-------------------|----------------------------|---------------------------|
| 27  | L. J. L. | Psychoneurosis                    | 15.7            | 17.6          | 17.0              | 16.6          | 11.0              | 1/2 gm. per kilo hamburger |                           |
| 26  | C. M.    | Pyorrhea alveolaris               | 13.7            | 18.7          | 36.0              | 19.0          | 39.0              | 1/2 gm. per kilo hamburger |                           |
| 28  | J. K.    | Tonsillitis chr. hypertrophic     | 14.0            | 15.0          | 7.0               | 20.0          | 44.0              | 1/2 gm. per kilo hamburger |                           |
| 29  | A. J.    | Tonsillitis chr. hypertrophic     | 12.0            | 16.0          | 33.0              | 17.0          | 42.0              | 1/2 gm. per kilo hamburger |                           |
| 26  | P. M.    | Abd. adhesions, post-op.          | 15.6            | 18.7          | 20.0              | 21.1          | 35.0              | 1/2 gm. per kilo hamburger |                           |
| 32  | A. K.    | Pyorrhea alveolaris               | 21.1            | 23.1          | 9.0               | 23.0          | 9.0               | 1/2 gm. per kilo hamburger |                           |
| 35  | F. G.    | Pyelitis, subacute                | 12.7            | 17.2          | 35.0              | 19.8          | 56.0              | 1 gm. per kilo hamburger   |                           |
| 32  | E. W.    | Tonsillitis, chr. hypertrophic    | 10.0            | 16.0          | 67.0              | 15.0          | 50.0              | 1 gm. per kilo hamburger   |                           |
| 21  | W. P.    | Tonsillitis, chr. hypertrophic    | 13.0            | 18.0          | 38.5              | 18.0          | 38.5              | 1 gm. per kilo hamburger   | Ate only 6/7 gm. per kilo |
| 34  | A. B.    | Tonsillitis, chr. hypertrophic    | 13.0            | 17.0          | 30.0              | 20.0          | 82.0              | 1 gm. per kilo hamburger   | Ate only 3/4 gm. per kilo |
| 32  | E. W.    | Tonsillitis, chr. hypertrophic    | 11.0            | 17.0          | 54.5              | 20.0          | 82.0              | 1 gm. per kilo hamburger   |                           |
| 25  | F. S.    | Pyorrhea alveolaris               | 13.0            | 25.0          | 92.0              | 30.0          | 130.0             | 1 gm. per kilo hamburger   |                           |
| 32  | N. R.    | Pyorrhea alveolaris               | 16.0            | 21.6          | 35.0              | 25.0          | 56.0              | 1 gm. per kilo hamburger   |                           |
| 29  | G. H.    | Hernia, inguinal                  | 17.0            | 23.0          | 35.0              | 23.0          | 35.0              | 1 gm. per kilo hamburger   |                           |
| 35  | A. R.    | Arthritis, chr. hypertrophic      | 10.15           | 13.04         | 18.0              | 16.8          | 65.0              | 1 gm. per kilo chicken     |                           |
| 19  | H. C.    | Enuresis                          | 11.5            | 17.6          | 53.0              | 17.1          | 49.0              | 1 gm. per kilo chicken     |                           |
| 30  | B. G.    | Pleurisy, rt. chr. fibrous        | 17.4            | 17.4          | 63.0              | 26.0          | 143.0             | 1 gm. per kilo hamburger   |                           |
| 21  | G. W.    | Furunculosis, left hand           | 18.7            | 23.5          | 25.0              | 27.8          | 49.0              | 1 gm. per kilo hamburger   |                           |
| 28  | J. B.    | Ankylosis, bony, index finger     | 20.6            | 23.3          | 13.0              | 26.3          | 27.0              | 1 gm. per kilo hamburger   |                           |
| 22  | F. A.    | Otitis media, chronic             | 16.4            | 25.0          | 52.0              | 25.4          | 54.0              | 1 gm. per kilo hamburger   |                           |
| 27  | C. E.    | Otitis media, chronic             | 26.3            | 29.4          | 11.0              | 32.6          | 24.0              | 1 gm. per kilo hamburger   |                           |
| 28  | O. M.    | Paralysis ext. poplit. nerve lft. | 13.5            | 14.4          | 6.7               | 18.0          | 34.0              | 1 gm. per kilo hamburger   |                           |
| 30  | H. M.    | Fract. lft. ankle, faulty union   | 15.8            | 18.5          | 17.0              | 22.4          | 50.0              | 1 gm. per kilo hamburger   |                           |
| 24  | O. D.    | Deformity left foot               | 16.8            | 25.2          | 50.0              | 27.2          | 62.0              | 1 gm. per kilo hamburger   |                           |
| 27  | M. M.    | Pes Planus                        | 16.2            | 27.2          | 67.0              | 27.8          | 71.0              | 1 gm. per kilo hamburger   |                           |
| 28  | J. B.    | Osteomyelitis, tibia, chr.        | 11.1            | 21.1          | 90.0              | 22.7          | 105.0             | 1 gm. per kilo hamburger   | Ate only 1/5 gm. per kilo |

TABLE 3—GROUP 3

*Patients Who Presented Clinical Evidence of Gastro-Intestinal Disease Without Liver Involvement*

| AGE | CASE      | DIAGNOSIS                   | Per Cent        |               | Per Cent          |                         | TEST-MEAL                    | REMARKS                   |
|-----|-----------|-----------------------------|-----------------|---------------|-------------------|-------------------------|------------------------------|---------------------------|
|     |           |                             | Fasting Urea N. | 4 hr. Urea N. | In-crease Urea N. | 6 hr. In-crease Urea N. |                              |                           |
| 37  | 1. J. S.  | Constipation, spastic ....  | 18.1            | 22.           | 21.               | 20.9                    | 16. 1 gm. per kilo hamburger | Blood filtrate not clear  |
| 24  | 2. R. R.  | Peptic ulcer, chronic.....  | 14.2            | 21.2          | 49.               | 26.08                   | 87. 1 gm. per kilo hamburger |                           |
| 33  | 3. J. S.  | Tumor colon, tubercul. .... | 12.1            | 20.2          | 67.               | 20.02                   | 65. 1 gm. per kilo chicken   |                           |
| 36  | 4. M. C.  | Achylia gastrica.....       | 14.2            | 17.2          | 21.               | 20.2                    | 42. ½ gm. per kilo chicken   |                           |
| 22  | 5. T. O.  | Appendicitis, subacute..    | 15.0            | 20.12         | 35.               | 21.4                    | 43. 1 gm. per kilo chicken   | Ate only 4/5 gm. per kilo |
| 33  | 6. R. H.  | Appendicitis, chronic ....  | 14.1            | 17.7          | 25.               | 17.5                    | 25. ½ gm. per kilo hamburger |                           |
| 35  | 7. E. F.  | Enterocolitis, subacute..   | 10.3            | 18.8          | 82.               | 18.8                    | 82. ½ gm. per kilo hamburger |                           |
| 50  | 8. W. N.  | Constipation, chronic ....  | 11.0            | 13.0          | 18.               | 19.0                    | 73. 1 gm. per kilo hamburger | Ate only 3/4 gm. per kilo |
| 39  | 9. A. H.  | Gastritis, chr., catarrhal  | 13.0            | 16.0          | 23.               | 23.0                    | 77. 1 gm. per kilo hamburger |                           |
| 33  | 10. L. E. | Gastritis, subacute .....   | 12.0            | 15.0          | 25.               | 23.0                    | 92. 1 gm. per kilo hamburger |                           |
| 30  | 11. F. E. | Appendicitis, chronic ....  | 12.0            | 16.0          | 33.               | 20.0                    | 67. 1 gm. per kilo hamburger |                           |
| 30  | 12. J. N. | Constipation, chronic ....  | 14.0            | 20.0          | 44.               | 25.                     | 78. 1 gm. per kilo hamburger |                           |
| 23  | 13. A. V. | Appendicitis, chronic ....  | 14.0            | 19.0          | 36.               | 20.0                    | 43. 1 gm. per kilo hamburger |                           |
| 25  | 14. F. F. | Constipation, chronic ....  | 9.6             | 18.0          | 87.               | 16.0                    | 66. 1 gm. per kilo hamburger | Ate only 3/4 gm. per kilo |
| 35  | 15. G. T. | Constipation, chronic ....  | 12.0            | 16.0          | 33.               | 17.0                    | 42. 1 gm. per kilo hamburger |                           |
| 22  | 16. A. G. | Gastric ulcer .....         | 13.0            | 20.0          | 54.               | 22.0                    | 70. 1 gm. per kilo hamburger |                           |
| 29  | 17. A. D. | Duodenal ulcer .....        | 12.6            | 17.0          | 35.               | 19.2                    | 52. 1 gm. per kilo hamburger |                           |
| 27  | 18. C. M. | Constipation, chronic ....  | 17.1            | 17.9          | ....              | 23.07                   | 35. 1 gm. per kilo hamburger |                           |
| 24  | 19. J. P. | Stricture of rectum .....   | 15.4            | 16.6          | 8.                | 20.                     | 30. 1 gm. per kilo hamburger |                           |
| 28  | 20. E. O. | Constipation, chronic ....  | 16.6            | 19.9          | 19.               | 21.7                    | 30. 1 gm. per kilo hamburger |                           |
| 35  | 21. H. B. | Constipation, chronic ....  | 9.3             | 14.7          | 58.               | 17.4                    | 87. ½ gm. per kilo chicken   |                           |
| 28  | 22. F. F. | Constipation, chronic ....  | 12.6            | 15.0          | 19.               | 21.5                    | 70. ½ gm. per kilo chicken   |                           |

couraging show no constant percentage of increase when compared with each other, nor do they show any remarkable diagnostic criteria when compared to Group 1 and Group 3.

COMMENTS ON GROUP 3 CASES

The third group of cases are those in whom during the course of their hospitalization a gastro-intestinal diagnosis was substantiated. It might be expected that this group would tend to show a lower six hour percentage of increase, but nothing remarkable can be said of them which does not apply to the previous group.

COMMENTS

Physiologists are generally agreed that proteins are hydrolyzed and absorbed through the gastro-intestinal tract as alpha-amino-acids. However, if any attempt is made to go still further into the problem with regard to the site and nature of the transformation of these amino-acids to ammonia and urea no general agreement can be found in the literature. What becomes of the amino-acids when they vanish from the circulation? Are they completely and at once synthesized into serum protein; are they at once removed from the circulation and incorporated into complex molecules of tissue to later undergo deaminization if not required for the economy of the organism; or does deaminization take place immediately? If so, where is the site of deaminization? In answer to such questions the literature is filled with a vast number of reports. Authors have been generally divided into three opposing groups: (1) Those who believe urea is formed only by the liver; (2) Those who believe urea is formed by all tissues but chiefly by the liver; and (3) Those who deny that the liver has any specific rôle in the formation of urea.<sup>6</sup> A few adhere to the first group but consensus of opinion as judged by standard text books of physiology and physiological chemistry<sup>7</sup> seems to be in favor of Groups 2 and 3. This indicates that there is

much which we do not understand concerning the metabolism of protein. As suggested above, we do not know how rapidly deaminization takes place. Van Slyke<sup>8</sup> injected amino-acids into dogs and one-half hour later sacrificed the animals and recovered it from the tissues unaltered. It is significant that the amount in the liver and kidneys was about equal and approximately three times more than could be recovered from muscle. This suggests that perhaps deaminization or excretion was about to take place in the kidney.

There is sufficient evidence to believe that amino-acids break down to form ammonia or urea. If ammonia is formed it presumably undergoes further transformation at once; for van Slyke<sup>9</sup> found that during the disappearance of amino-acids from the liver there was no increase in the ammonia content of that organ nor was the ammonia excretion in the urine marked. Furthermore, it has been shown<sup>9</sup> that after injecting amino-acid into the blood stream there was an increase in the blood urea nitrogen. Whether or not this is accomplished in whole or in part by the liver or in the complete absence of the liver is not settled. Nebelthron<sup>10</sup> was unable to find any urea in the urine secreted after removing the liver from frogs, although there was marked increase in ammonia formation. Bollman<sup>6</sup> showed that hepatectomized dogs had only a decreased amount of urea in the blood and tissues and that their urines contained urea nitrogen, although less than normal in amount. Fiske says that although deaminization and urea synthesis without the liver is incomplete, nevertheless they can occur to such an extent that the greater part of the nitrogen normally excreted as urea is still in this form. Stadie<sup>11</sup> says that in hepatic disease the liver is unable to convert amino-acids to urea. On the other hand Bollman<sup>6</sup> says, "Conclusions based on clinical studies of extensive hepatic disease indicate that the liver has marked influence on the production of urea, but no defi-



nite conclusions seem possible. The extent of the lesions and the functional capacity of the liver may vary extensively and the influence of other tissues is always to be considered."

It is highly possible, therefore, that in the higher vertebrata, the rôle of the liver in protein metabolism is partially assumed by other organs when the liver is impaired. Further work<sup>9</sup> has shown that when in any overloading test a large amount of amino-acid is thrown into the circulation, only a small amount is taken up by the muscles and the liver attempts to desaturate itself by deaminizing amino-acids and consequently maintaining indefinitely its power to continue to remove acids from the circulation only so long as they do not enter faster than it can desaturate itself. If this balance is broken the kidney assists in removing the amino-acids by excreting them unchanged. This is evidence in favor of the reliability of the test in question. However, the patients in whom we are most interested are jaundiced bed-patients and therefore have been allowed meats only sparingly and are in protein semistarvation. When such patients are given an overloading protein meal not only is digestion sluggish, but some of the amino-acids formed are used for tissue construction. Furthermore, it has been shown<sup>9</sup> that amino-acids can be held in the liver for a while before they are broken down. We have, therefore, three complicating factors in estimating the true meaning of the blood urea nitrogen figures; *viz.*, sluggish digestion, protein semistarvation, and retention of amino-acids in the liver for an indefinite period. Herein lie the unsurmountable fallacies of the protein test for urea formation function of the liver. Nevertheless, although not diagnostic, like the many other tests of hepatic function, the urea test is not without value. A comparative study of Group 1 taken as a whole shows a lower percentage of increase than Groups 2 and 3. However, when one seeks data in any one case we believe the result of the test, like the result from other hepatic function tests, is not to be taken as a last word in diagnosis. As previously suggested after all is said and done we know only a little about the function of the liver. We must wait for further study by the biochemist, the physiologist, and the clinician before we shall have not only more accurate knowledge concerning the complex rôle played by the liver in health and disease but also the interrelation of the functional activity of the liver and other tissues. In the meantime we shall have to content ourselves by accumulating data on cases both normal and abnormal until we feel competent to say whether or not such information, together with other clinical findings aids us in arriving at a diagnosis.

#### CONCLUSIONS

(1) Protein overloading test-meals are difficult to ingest in jaundiced and sick patients. (2) The protein test for urea formation function of the liver shows a range of variability in normal individuals which is too wide to be of significant assistance in the early diagnosis of chronic hepatic

disease. (3) In hepatic disease the percentage of increase in blood urea is not proportional to the amount of liver involvement as estimated by clinical findings and other recognized methods of laboratory procedure. (4) Separate sets of standard increases in normal individuals must be established for adults and children.

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#### JAUNDICE DUE TO MOVABLE KIDNEY\*

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A MOVABLE kidney is occasionally responsible for gastric and gall-bladder complaints, due to tension and displacement of its attachments and peritoneal coverings. The literature on the subject is very scant. Bramwell<sup>1</sup> cites a case of death from gastric distention in which autopsy revealed a constriction of the duodenum by three distinct bands of thickened peritoneal tissue which gradually spread out over a freely movable right kidney; traction on the bands dragged on the pylorus and produced the distention.

Peritoneal tension, due to a kidney displaced traumatically or otherwise, may at times obstruct the bile ducts and initiate a chain of symptoms such as pain, nausea, and jaundice, indistinguishable clinically from true gall-bladder disease. I have recently observed a case of this kind; but before giving its detailed clinical history, a brief résumé of the literature will be given.

#### SURVEY OF THE LITERATURE

Maclagan and Treves<sup>2</sup> report three cases in which a movable kidney produced symptoms of gall stones; on abdominal exploration all cases were found to have negative gall bladders and bile ducts. Complete cures were obtained by fixation of the kidney. Hutchinson reports two similar cases in which abdominal explorations and later kidney fixations were performed. In one

\* Read before the Urology Section of the California Medical Association at its Fifty-Sixth Annual Meeting, April 25-28, 1927.

case the patient, a woman of twenty-eight, came for relief of jaundice and vomiting; she had clay-colored stools and bile in her urine; her weight had dropped from 168 to 98 pounds. The gall bladder and bile ducts were explored through an abdominal incision and found normal, but a floating kidney was discovered which was suspended through an extraperitoneal incision. The stools immediately became normal in color and the patient recovered.

Just as gall-bladder disease occurs more frequently in women than in men, movable kidneys are also more common in females. Kelly<sup>3</sup> found that one in every five women had a movable kidney as compared with one in every fifty men. Not infrequently in men, as in my own case, there is a history of trauma that may possibly be related to the displacement of the kidney. White<sup>4</sup> reported a case of a man who was knocked down from a blow in the back. Seventeen months later he was jaundiced and had bile in his urine. On examination a movable kidney was found for which a nephropexy gave permanent relief.

Movable kidney and cholecystitis are not infrequently found associated in the same individual. If a displacement of the kidney and its attachments retards or obstructs the flow of bile it may possibly in some cases be an indirect cause of gall stones and at times it is extremely difficult to definitely determine the primary cause of the symptoms present. In one case in which gall stones were found, the right abdominal pain and discomfort remained unchanged after cholecystectomy; on cystoscopic examination a right movable kidney with considerable torsion was found. This association of movable kidney and gall stones is quite a common one, but it is difficult to prove any direct relationship between the two.

#### PRODUCTION OF JAUNDICE BY MOVABLE KIDNEY

Movable kidneys do not move freely up and down under the peritoneum. The peritoneal folds are usually quite adherent to the kidney surface; and, in cases of long-standing displacement, the peritoneal folds are at times markedly thickened. Bramwell<sup>1</sup> states that when the kidney moves downward it carries its peritoneal covering with it and thus stretches the superior and internal reflections of the peritoneum which pass upward and over the pylorus and neighboring structures until in aggravated cases distinct bands are formed. Gallant<sup>5</sup> attributes the jaundice in cases of movable kidney to traction of the kidney on the cystic or common duct. Horizontal posture allows the kidney to recede enough to relieve the tension on the ducts and puts an end to biliary obstruction. Deaver<sup>6</sup> believes that the condition is due indirectly to a kinking of the common duct by traction. Byron Robinson<sup>7</sup> states that the perirenal areolar tissue binds the kidney to the diaphragm and that at the upper renal pole it fuses with the suspensory ligament of the liver on the right side. If the kidney drops down from the liver, its peritoneal and subperitoneal tissue connections may produce traction on the biliary passages, flexing and obstructing them. In one sub-

ject Robinson found a peritoneal band extending from the kidney to the common duct.

The normal right kidney is closely associated with the second part of the duodenum which rests on it; the pelvis of the kidney is on the same level and a little to the outer side of the orifice of the common bile duct; and the lower end of the kidney is about level with that of the duodenum. Lindner<sup>8</sup> has shown that a right movable kidney drawn forward and downward causes traction on the duodenum at a point two or three centimeters below the entrance of the biliary duct; and, though it does not occlude the lumen, it may interfere with the contents of the bowel sufficiently to impair digestion and to cause biliary obstruction. Stiller<sup>9</sup> and Küster<sup>10</sup> both believe that the upper abdominal pain and jaundice associated with movable kidney come from a pull on the fixed, descending part of the duodenum and obstruction of the papilla of Vater. Weisker<sup>11</sup> states that a hepatorenal band exists, such accounting for the dragging on the neck of the gall bladder by the movable kidney.

Keith<sup>12</sup> in dissecting a cadaver with a movable kidney, in the London Hospital College, found that the axis of the gall bladder had become almost vertical and formed an angle of twenty degrees with the common bile duct. The third part of the duodenum had been so displaced that it rested on the common iliac artery and the orifice of the bile duct was at least one vertebra lower than normal. Hutchinson<sup>13</sup> states that such kinking of the cystic duct as was seen in this specimen must impede the escape of bile from the gall bladder; he considered that the occurrence of obstructive jaundice with movable kidney may result from any of the following three conditions: (1) a downward displacement of the third portion of the duodenum with a stretching of the common bile duct; (2) a displacement of the gall bladder and sharp kinking of the cystic duct; (3) torsion of the vertical part of the duodenum and perhaps even of the bile duct.

The following personal case is one in which a kidney was torn from its fossa by trauma; it was replaced in the fossa by surgical operation and sutured to the neighboring structures. Later on a further trauma again caused the kidney to leave its normal location resulting in a strain not only on the usual attachments but also on those formed by the suspension procedures.

#### CASE REPORT

A. G. B., a male, age 55, complained of jaundice with pain in the upper right quadrant of the abdomen.

*Past History.*—Twenty-three years ago he was struck in the right lumbar region by a falling rock. On examination it was found that his right kidney had apparently been bruised and was abnormally movable. The kidney was explored through a right postero-lateral incision; it had been torn from its usual location and partly lacerated. The lacerations were repaired and the kidney sutured back in place. The patient had no further trouble until the present illness.

*Present Illness.*—Eighteen months ago he fell thirty feet and stopped himself with a sudden jerk by catching a beam with his hands and arms. Several weeks after this he had an acute attack of pain in the region of



the gall bladder; the pain lasted several days and was associated with gastric distress, nausea, and definite jaundice. Several times during the last eighteen months he has had similar but milder attacks consisting mostly of epigastric distress and nausea during which time cold sweats break out. The patient stated that he had been quite well the three months previous to his present attack.

One week before entering the hospital patient had a sudden onset of pain in the epigastrium, associated with abdominal distention. The pain, which was severe and colicky, radiated to his right shoulder and has persisted up to the present time. Several days ago he noticed that his skin and eyes were becoming increasingly yellow, that his urine was highly colored and the stools pasty and white.

*Physical Examination.*—Skin, scleræ and mucous membranes colored a deep yellow. There was moderate abdominal distention and tenderness in the gall bladder region; no abdominal masses or organs were felt. There was a straight scar seven centimeters long in the right posterior renal area. The lungs were clear and the heart sounds normal and regular. Temperature normal.

*Laboratory Data.*—The urine contained bile with an occasional pus cell, but was otherwise normal on several examinations during the first week of his stay in the hospital. The specific gravity varied from 1010 to 1014.

Blood examination revealed a moderate leukopenia, 6000 and 8000 leukocytes being found in two examinations. The hemoglobin, red blood cell count and differential white cell count were not abnormal. The Wassermann test was negative. The icteric index of the blood varied from five to nine times the normal amount. The van den Bergh test on one occasion indicated a hemolytic type of icterus and on another occasion, when the jaundice was most intense, it gave an immediate, direct reaction indicative of a complete obstructive type of jaundice. The bleeding time was five minutes, and the clotting time three minutes. The nonprotein nitrogen was 37 mg. per 100 cc. of blood. The salivary urea several days later was 56, indicative of a nonprotein nitrogen of 47.

The stool at the height of the jaundice was negative for bile. Several days later urobilin was present.

*X-ray Examination.*—Fluoroscopically the stomach and duodenal cap were negative for demonstrable involvement, though there was a slight gastric residue after six hours. A radiogram of the gall bladder, kidney and urinary bladder revealed a collection of shadows, apparently stones, one-half to two centimeters in diameter in the right lumbar area; this area was limited above by the twelfth rib and below by the iliac crest; neither kidney could be outlined.

Marked jaundice was present and all symptoms indicated gall-bladder trouble. On the eighth day of his stay in the hospital the patient complained of moderate frequency of urination and discharge from the urethra. The discharge was of small amount, mucoid, and only of some hours' duration. An examination of the urine at this time revealed numerous pus cells and many colonlike bacilli. The appearance of a pyuria coupled with the history of a previous operation on the right kidney necessitated a cystoscopic examination before surgical intervention in the right upper abdominal area could be considered.

Cystoscopy showed moderate, bilateral, intra-urethral enlargement of the prostate. The bladder contained two ounces of residual urine and the bladder wall was trabeculated. Both ureteral orifices were normal in appearance. Regular spurts of clear urine came more frequently than normally from the left orifice. Intravenous indigo carmin returned a deep blue in four minutes from the left kidney; no blue was seen coming from the right side in twenty minutes. The right ureter was catheterized and 150 cc. of thick, cloudy fluid withdrawn with a syringe. A right pyelogram revealed an extensive dilatation, obliteration

of all the calices, and an almost complete destruction of the renal parenchyma; the irregular shadows seen in the original x-ray were obscured in the pyelogram. A catheter was left in the ureter for drainage. Six hours after cystoscopy the patient was free from all pain in the gall-bladder region, the jaundice decreased in amount, and the stools were darker. Forty-eight hours later the catheter was removed following which the patient had a severe chill, the jaundice became more intense, there was an immediate, direct positive van den Bergh test, the icteric index went up to sixty-five (thirteen times the normal), with severe pain and tenderness over the gall-bladder region. A ureteral catheter was again inserted in the right ureter for semipermanent drainage, and the kidney pelvis washed out with a one per cent solution of mercurochrome every four hours. The following day the jaundice began to clear very rapidly, pain ceased and the stools were brown. Two days later the jaundice had practically disappeared.

The catheter was left in place for six days following which the patient was in good condition, with practically no pain, and the urine from the right kidney contained only a small amount of pus.

*Operation.*—(Dr. H. E. Schiffbauer.) The kidney was exposed through a right lateral incision; the old scar was excised. The kidney was found distorted with extensive perirenal adhesions which were separated by sharp dissection. The renal pedicle was dissected out, clamped and ligated in two places and the kidney removed. The kidney was almost completely destroyed; it was hydronephrotic, dilated and composed of only a shell of parenchyma containing a number of stones varying in size from 5 mm. to 2 cm. in size.

There was no further jaundice following operation, no abdominal pain or gastric discomfort, and eight months later the patient felt quite well.

#### COMMENT

In this case the clinical findings, symptoms, and laboratory data all suggested a lesion of the bile passages. As in cases of true gall bladder and bile duct disease the evidence on which a diagnosis was based was mainly presumptive. It was impossible absolutely to exclude a coincidental lesion of the gall bladder as the cause of the symptoms. On the other hand, after complete relief of all symptoms from permanent ureteral drainage, the catheter was deliberately removed to see if this would cause a return of symptoms; the prompt return of pain and jaundice suggested a close causal relationship. A second ureteral catheterization again gave him relief and was continued until the time of his operation.

Ureteral drainage in this case not only gave the patient relief from symptoms but, by decreasing the size of the kidney and draining out most of its infected contents, it facilitated the operative removal and reduced the possibility of contamination of the surgical field.

The jerk caused by the sudden stop in the patient's fall, which occurred two years ago shortly before the appearance of his abdominal symptoms, must have exerted a terrific pull on his body and the suspended right kidney. This very probably was sufficient to cause the kidney to shift position, carrying its peritoneal coverings, fascial attachments and perirenal tissue, en masse, downward. The adhesions resulting from his previous operation were very dense and the extreme difficulty which occurred in freeing the kidney during the nephrectomy indicated that the kidney had not

only slipped out of place by itself, but that it had carried down all the perirenal and overlying tissues with it.

It is difficult to understand how the catheter drainage of a small infected hydronephrosis would relieve such intense jaundice. There was a marked perinephritis present which might readily have extended to the bile passages. Drainage of the kidney would permit this extrarenal infection to subside, thus clearing up the pain and jaundice.

The upper abdominal pain associated with movable kidney and secondary biliary disease is rarely as severe as occurs in acute gall-stone colic, and it is usually relieved by the prone position; lying down relaxes the pull on the bile ducts and relieves obstruction. In the early stages there may be only slight traction on the ducts causing mild attacks of a bilious nature, a sense of gastric discomfort and nausea. In one case reported the patient described his attacks as "weakness and sweating." The pain usually does not have the sudden onset or cessation such as occurs in calculus obstruction. Gastric disturbances, nausea, vomiting, and a general sense of epigastric discomfort are usually present.

Gall-bladder symptoms resulting from movable kidneys most frequently occur in thin, young, adult women, differing from the common fleshy type of women usually suffering from gall-bladder disease. The jaundice is generally mild, intermittent, and of short duration, lasting from one to several days. In an occasional case there may be almost complete obstruction together with an associated, secondary inflammation of the bile ducts. In the acute type of obstruction, similar to that occurring with common duct stone, the urine contains bile and the stools are clay-colored.

During the onset of symptoms in the above case the van den Bergh test did not show a completely obstructive type of jaundice. Later an immediate, direct reaction was obtained indicating that the obstruction had become complete. This condition persisted until the kidney was drained through the ureteral catheter which permitted the remaining shell of renal tissue to collapse and either to shift back into a more normal position or to release the pressure on neighboring structures.

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#### DISCUSSION

H. E. SCHIFFBAUER, M.D. (520 West Seventh Street, Los Angeles).—This interesting case reported by Doctor Scholl demonstrates the value of a careful study of the patient before operating.

With a history of sudden onset of pain in the epigastrium, followed by nausea and vomiting, with abdominal distention, and a persistent pain radiating to the right shoulder, with jaundice and clay-colored stools, and a past history of indigestion with four previous attacks of gall-bladder disease, a diagnosis of common duct stone is usually made.

The urine was negative on two previous examinations, but following a chill and temperature of 104 degrees, frequent urination occurred, with a large amount of pus present in the urine, leading to a complete study of the urinary tract which revealed a pyelitis, with renal calculi.

After lavage of the right kidney pelvis, and leaving the ureteral catheter in the pelvis, the jaundice disappeared but returned after the catheter was taken out.

After the removal of the pyonephrotic kidney, with its numerous renal calculi, and a distended pelvis, which was firmly attached along its inner border by dense fibrous bands, the jaundice disappeared. Since the operation, more than a year ago, the patient has had no attacks of indigestion, nor has the jaundice returned.

Just how the obstruction of the common duct was brought about is difficult to explain. It is possible that the fibrous bands extended from the inner border of the kidney to the common duct and from the posterior surface of the second portion of the duodenum; and that with the distention of the pelvis of the kidney, and shifting of the kidney position, a partial obstruction of the duct took place. This may have set up an inflammatory reaction in the terminal portion of the ducts and duodenum, with an edema of these structures, subsequently causing a complete blocking of the common duct. This was relieved by catheterization of the kidney pelvis, but returned after the catheter was removed, with a complete recovery after a right nephrectomy; which is conclusive that the severe jaundice and gall-bladder symptoms were due to a diseased kidney.

☞

WILLIAM E. STEVENS, M.D. (870 Market Street, San Francisco).—I do not recall having seen a case of jaundice caused solely by a movable kidney, but every urologist has encountered patients with gastro-intestinal disturbances due to this condition. Gastro-intestinal symptoms may be due to the renal pain acting through the sympathetic or central nervous systems or may result from traction or pressure on the stomach, duodenum or ascending colon.

Kinking or pressure on the bile ducts is usually responsible for the jaundice when a movable right kidney is the only etiologic factor. Tumors of the right kidney cause jaundice by direct pressure on the common duct.

While jaundice due to cholecystitis and cholelithiasis are not infrequently associated with a displaced or



movable kidney, I believe that Doctor Scholl has satisfactorily proven that the jaundice in his interesting case was due to the latter condition.

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A. ELMER BELT, M. D. (523 West Sixth Street, Los Angeles).—The first case of jaundice dependent upon disease of the right kidney which came under my observation I saw when I was a medical student, through the kindness of Dr. Charles P. Mathé of San Francisco who had completed the studies of his patient and established the causal relationship. The patient was a strong, well-muscled man of forty who developed an acute right pyelonephritis with an immediate appearance of deep jaundice. I was impressed with the difficulties of differential diagnosis, the ease with which proof of the underlying cause of the illness was established through proper urological investigation and the great danger to the individual of an erroneous surgical procedure based upon a wrong interpretation of the physical signs.

I was consequently prepared, because of this previous experience, to hold firmly to an opinion which seemed to my consultants to be at variance with the mass of evidence, when my own time came to help unravel one of these diagnostic puzzles, which is here outlined:

The patient was a 35-year-old Jewess, fat, strong and well developed, with a previous record of excellent health. She suddenly developed an acute pain in the upper right quadrant with a soaring fever and deepening jaundice. She was nauseated, experienced a severe general malaise and her skin began to itch. A secondary complaint was heavy pain in the right back, dull and aching in character. Tenderness in the right costovertebral angle was acute. It was on this account that her physician asked for urological consultation.

There was neither pus nor bacteria in the urine. A plain kidney picture revealed a rounded right kidney. The usual convexity of the outer border of the kidney was greatly increased. The left kidney was normal in appearance. There was no evidence of calculus. Cystoscopy was done. Vision of the bladder revealed a normal left ureteral orifice. The right ureteral orifice was reddened and bulging. Indigo carmin, which appeared promptly on the left, did not appear on the right. Catheterization of the right ureter was attempted but was found impossible. The tip of the catheter would not enter the swollen, edematous right ureteral orifice. A second attempt at ureteral catheterization was postponed for three days.

Fever was intermittent in type and ranged from 97 to 106 degrees. The jaundice deepened. The white count reached 26,000. The stools became clay-colored. Catheterization of the right ureter was now successfully accomplished. As the orifice was passed a sudden gush of hot, purulent urine occurred through the catheter which was left indwelling. The fever dropped to normal. The patient rebounded to sudden health. On the third day the catheter was removed. Jaundice and all accompanying signs and symptoms at once reoccurred. A larger catheter was inserted and left indwelling. When this was withdrawn jaundice, pain and fever again returned. Careful dilatation of the right ureteral orifice was then carried out and the symptoms of obstruction completely disappeared. Subsequent pelvic lavage with silver nitrate at weekly intervals was instituted. The function of the right kidney returned to normal; infection disappeared. Jaundice never returned.

The patient herself believed that an infection of the gall bladder lay beneath her trouble. The possibility could not be denied. She dreaded a reoccurrence of an attack. Other members of her family had had gall-bladder infections and were permanently relieved by the removal of the organ. Eight months later her surgeons submitted to her insistent demands and a laparotomy was done.

The postoperative diagnosis was "adhesions." The surgeon's statement follows: "An apparently normal

gall bladder was found with the exception of dense adhesions of the great omentum extending from the fundus to the pelvis. The gall bladder had been pulled down very low which may have caused an acute angulation of the cystic duct. The transverse and descending colon were adherent to the ascending colon." The adhesions were freed. The gall bladder was left intact.

The region had been the scene of a stormy session of extensive perinephritis.

Doctor Scholl is to be congratulated upon the vivid and interesting presentation of his case and the literature of this subject.

## ASTHMA AND HAY FEVER\*

### PART II

By SAMUEL H. HURWITZ, M. D.  
San Francisco

DISCUSSION by J. Marion Read, M. D., San Francisco;  
I. C. Schumacher, M. D., San Francisco.

THE effectiveness of specific treatment in patients sensitive to other inhalants than pollens may be judged best by following the clinical course and treatment of a number of such patients over a period of years. From a fairly large number of cases observed during the past ten years I have selected interesting records of five sensitive asthmatics who have been under more or less close observation for periods varying from one to eight years.

### ILLUSTRATIVE CASES

CASE 1. *Horse and Dog Asthma*.—Miss H. T., an office clerk, age seventeen years, was first seen October 23, 1923. She had had asthma since the age of five years. There is a history of asthma in a great-uncle and a first cousin, but not in the immediate antecedents. The paroxysms at first occurred about a month apart. Lately the frequency of the attacks had definitely increased so that she was rarely symptom-free for more than a week at a time. Head colds are associated with the attacks, but do not usually precede them. Between paroxysms she sneezes a great deal and has watery and itchy eyes. Dust bothers her but wind, fog, overexertion and overeating do not trouble her. There is no history of animal contacts, except that in childhood some tightness in the chest and wheezing usually occurred after going to a circus. It is interesting that one of the most severe paroxysms noted during her course of treatment followed contact with a neighbor's dog.

Cutaneous reactions were given only by extracts of horse hair and dog hair. These were very large, varying at different times between 2 and 3 centimeters in diameter and attended by marked itching. The economic status of the patient made possible only slight changes in her environment. Desensitization seemed to be the only worthwhile mode of treating her. Injections of dog hair extract were commenced on October 29, 1923, and completed on March 17, 1924. During the four months of desensitization with dog hair she was symptom-free most of the time. Several short attacks followed head colds, sore throats, and gastro-intestinal upsets. On retesting after desensitization the skin reactions were found less strongly positive to dog hair, but markedly so to horse hair. A similar course of desensitization with horse hair was carried out between March 19, 1924, and December 29, 1924. This course of treatment was uneventful except for one constitutional reaction (giant urticaria, cyanosis, dyspnea, wheezing and cough) following an overdose of a stronger dilution of horse hair extract. The patient reported in November 1927 that she has been quite free from asthma for the past three years. During this period only two mild attacks occurred,

\* This is the second of two papers on this subject. The first paper was printed in this journal in last month's issue.



one following a severe cold and the other while riding horseback in Yellowstone National Park.

**CASE 2. House-Dust Asthma—Desensitization.**—Mrs. A. H., an American housewife, age thirty-three years, was admitted to the Stanford University Medical School Clinic (clinic number 158400) on December 8, 1926. The patient was referred to the asthma clinic by Dr. C. W. Clark of San Anselmo, California, who commented that "Mrs. H is a terrible sufferer from asthma. Nothing but hypodermics of morphin seem to relieve her." She had been troubled with asthmatic attacks for thirty years, the first spell having occurred at three years of age. The patient's grandmother had been a sufferer from asthma, and her son, now about twelve years of age, has an occasional attack of sneezing and wheezing. In 1923 she was advised to leave her home in Kansas, where the paroxysms had become very frequent. She came to California. During the past year she has lived in San Francisco. From August, 1926 to January 5, 1927, she has had about five severe asthmatic paroxysms, each spell lasting about three days. In character the attacks were very much alike: itching of the nose, scratchy feeling in the throat, cough, expectoration of some stringy mucous and wheezing. She cannot sweep or stir up any dust for fear of precipitating an attack. More of the spells have occurred in the late summer and winter than at any other time of the year. Fall pollens, face powders, and all forms of smoke make her sneeze. When a child she had cats about the house, but since then there have been no animal contacts.

Aside from the signs of bronchospasm during the asthmatic paroxysm the physical examination was negative. A moderate deviation of the septum and chronically infected tonsils were found by the rhinologists. The tonsils were removed on January 4, 1927.

Skin tests were carried out with a large number of extracts of food, epidermal, pollen, and miscellaneous origin, all of which were negative. Cutaneous and intracutaneous tests with stock and autogenous dust extracts, however, produced large urticarial wheals with pseudopodia, erythema and itching, with some brawny induration lasting for twenty-four hours. To dilute solutions of histamin the patient's skin gave a larger reaction than the skin of a normal control individual. On October 31, 1927, this patient's dust sensitivity was passively transferred to a local skin area of a normal individual by the procedure of Prausnitz and Küstner.<sup>12</sup>

The economic status of the patient precluded any radical changes in her home, such as the removal of furnishings made from animal hair and wool, or the creation of dust-free surroundings. In lieu of this desensitization with an autogenous dust extract was begun on February 11, 1927, and continued at weekly intervals. The patient has remained asthma-free during the period of desensitization, but her skin still reacts positively to intracutaneous injections of the extract. No untoward local or constitutional reactions have been encountered; the patient is still under treatment at date of writing. She has gained about twenty-five pounds in weight and much in strength and endurance.

**Discussion.**—Hypersensitiveness to house dust can often be controlled by a thorough cleaning of all the rooms of the asthmatic's home, particularly of the bedroom in which the patient sleeps. In 1924 Van Leeuwen of Holland demonstrated the value of the dust-proof chamber in the control of this type of asthma; and in 1925 Leopold and Leopold,<sup>13</sup> by the use of a dust-free room in which the temperature and humidity were controlled, showed the specific effect of house dust on patients whose asthma was due to sensitization with such dusts.

The exact nature of the sensitizing agent in house dust is still a moot question. Cooke,<sup>8</sup> who

was among the first students of dust-sensitive asthmatics believes the active principle in dust to be a new, specific and unknown substance, a view upheld by Spivacke and Grove<sup>14</sup> in 1925. Rowe,<sup>15</sup> on the other hand, presents evidence that dust reactions depend in all probability upon one substance or a summation of lesser reactions to several substances such as animal epidermals, pollens, orris root, and fabric dusts, all of which may enter into the composition of house dust. This conclusion, as already mentioned, is not in accord with the observations of Cooke nor does it coincide with the results obtained by us in a study of a number of dust-sensitive patients. Some new knowledge concerning the active sensitizing substance in house dust may come from the work of Ancona<sup>16</sup> in Italy and Van Leeuwen<sup>5</sup> in Holland. The former described an epidemic form of asthma among millers resulting from contact with the dust of grain infested with an insect, *pediculoides ventricosus*, and the latter cites instances of asthma caused by dust from grain and kapok from which various fungi, notably *Aspergillus fumigatus* could be grown. Their observations give some support to the view that the active sensitizing substance in the above dusts and also in house dust may be derived from the products of fungus growth and that desensitization with extracts prepared from the products of fungus growth gives as good clinical results as desensitization with the extract of house dust itself.

**CASE 3. Orris Root Rhinitis—Asthmatic Bronchitis.**—Mr. P. I., a school boy of nineteen years came under treatment on November 17, 1924. There was no history of hay fever or asthma in his antecedents. From the age of six to nine years he had suffered from a stubborn eczema. Since infancy he had been subject to head colds and bronchitis. An operation on the nasal septum done at the age of eleven years and a tonsillectomy and adenoidectomy at the age of thirteen years did not give him relief from head colds. During the past several years, his sneezing, cough, expectoration and wheezing had become very troublesome.

An extract of orris root produced a large and typical skin reaction but no other skin tests were found positive. Cultures of the nasal and bronchial secretions showed a flora in which streptococci predominated. From these cultures an autogenous vaccine was prepared. Because of the coexistence of orris root coryza and asthmatic bronchitis, it was decided to combine vaccination with desensitization against orris root. From November 28, 1924 to March 26, 1925, autogenous vaccine alone was given in increasing doses. During the following year a better result was obtained by combining vaccination with desensitization. The last treatment was given May 18, 1926. The results of treatment were discouraging in the beginning. Following the elimination of orris root and desensitization against it, the sneezing became less distressing, but the head and chest colds and moderate wheezing persisted. These symptoms have now almost disappeared. In September 1927 the patient reported that he was quite symptom-free and had been so for the past year.

**Discussion.**—The importance of sensitization to orris root as a frequent cause of nonseasonal hay fever and asthma is gaining wide recognition.<sup>17</sup> Orris root is contained in many of the face powders, tooth and bath powders, scented talcs, and sachets. Elimination therapy alone is often unsuccessful because of the widespread occurrence



of orris root in house and street dust. Many orris root sensitive patients have perennial symptoms which are often atypical. They usually consult a rhinologist, who may overlook the allergic factor and resort to nasal surgery, which fails to give the desired relief. It is, therefore, very essential that every patient who suffers from an obstinate and obscure rhinitis be tested with an active extract of orris root.

**CASE 4. Rabbit Hair Sensitization—Asthmatic Bronchitis.**—Mr. C. R., a real estate broker, age 34 years, came under observation October 20, 1919. No family history of allergic diseases was elicited. The first asthmatic paroxysm occurred at the age of twenty-nine years, two years following a series of head and chest colds. Between 1914 and 1916 the patient had averaged about four severe paroxysms a year. In 1917 following a tonsillectomy he was symptom-free for eleven months. In 1918, four years after the beginning of his asthma he had a violent spell following exposure to rabbit hair. The attack, which was characterized by fullness in the head, flushing and swelling of the face, itching of the skin and bronchospasm lasting about twelve days, followed contact with a pet rabbit. In 1919, after similar exposure to rabbit emanations, the patient had another asthmatic attack. This convinced him of the possible association between his attacks and exposure to rabbit hair. Between paroxysms he sneezes considerably, is susceptible to head colds and brings up considerable mucopurulent material.

Skin tests with a 1:1000 dilution of rabbit hair extract produced large urticarial wheals with pseudopodia, erythema and itching. Between November 21, 1919 and March 3, 1920, the patient was desensitized to rabbit hair. This was repeated from December 18, 1923 to May 24, 1924. The asthmatic attacks now disappeared although skin tests continued to be positive to rabbit hair. During the past three years he has had light paroxysms only after head colds and bronchitis. In 1919 desensitization was combined with a course of vaccination and, because of the continued tendency of colds to provoke slight attacks, it was thought well to continue treatment with an autogenous vaccine at stated intervals. This course has been repeated three times since 1925, and the patient is now quite free of asthma and an occasional mild attack of tightness in the chest following a severe cold is easily controlled.

**Discussion.**—It may be assumed from the history that this patient had become sensitized to rabbit hair prior to his actual contact with the animal itself. Head colds and repeated attacks of bronchitis doubtless helped to aggravate the specific hypersensitiveness and to continue the paroxysms after desensitization with rabbit hair. A sensitization of this kind is often difficult to explain. In 1922 Ratner<sup>18</sup> of New York City reported a number of instances of rabbit-hair sensitization in children resulting from exposure to rabbit hair so commonly used there as a stuffing for pillows and mattresses, a finding confirmed by Larsen and Bell.<sup>19</sup>

**CASE 5. Fish Glue Sensitization—Asthmatic Bronchitis.**—Mr. E. D. P., an automobile salesman, age thirty-one years, was referred on April 16, 1926, for attacks of asthma which began in infancy. Neither parent had an asthmatic history, and of three sisters and four brothers only one brother had had some wheezing at times. When fifteen years of age the patient had a severe attack of pneumonia and was ill for about three months. Two years later he had another attack of pneumonia lasting three weeks. In each instance

the wheezing was worse during the onset of the pneumonia.

The first asthmatic paroxysm followed a severe attack of eczema when the patient was three years old. Subsequent attacks have frequently followed catching cold. Of great interest in the history is the observation made by the patient himself that exposure to the odor of shellac used in the reconditioning of automobiles frequently produced some "tightening up" and wheezing. Paroxysms have also followed the use of glue or the licking of postage stamps. He has learned to omit fish from the diet because the ingestion of most kinds of fish gives rise to tightness in the chest and wheezing. Contact with horses, dogs, and rabbits in childhood never caused asthma and the attacks have no relation to seasons.

A strongly positive reaction was obtained with an extract of Le Page's glue. A number of fish extracts rubbed into the scarified skin also gave positive reactions, notably sea bass, haddock, halibut, cod, trout, mackerel, herring, perch, and pike. Lesser reactions were given by cotton seed, pyrethrum, and silk. Despite the presence of multiple sensitization, the history gave strong presumptive evidence of the importance of fish protein hypersensitiveness as the major cause of the patient's symptoms. On May 14, 1926, in the course of retesting the patient, an extract of Le Page's glue produced within a few minutes after being applied to the scarified skin a severe attack of asthma.

No specific desensitization with fish glue extract was attempted because, from the experience of others, it seemed unlikely that a good result would be obtained. In a letter of May 28, 1926, Dr. Robert A. Cooke of New York City states: "I do not believe that desensitization (with fish glue extract) is very satisfactory. We have tried it in a number of instances but have usually given it up because it is not very practical. Contact with it can be avoided and any course of treatment would be extremely long and uncertain." Elimination of all possible exposure to glue was recommended and the secondary asthmatic bronchitis was treated with an autogenous vaccine given from May 6, 1926 until August 15, 1927. With the lessened incidence of cold-catching the frequency and severity of the asthmatic paroxysms diminished, the patient being much improved and able to carry on his work.

**Discussion.**—Hypersensitiveness to fish glue is a recognized, although not a very common cause of asthma. Cooke<sup>20</sup> in 1922 reported a fatal constitutional reaction in a child following the intradermal injection of 0.01 cubic centimeters of a very dilute solution of fish glue extract, and Duke and Stofer<sup>21</sup> in 1923 cite an instance of very marked sensitization to glue in a patient who showed the same violent constitutional reaction to the application of fish glue extract on the scarified skin as was shown by our patient.

The history of this patient and his reaction to the specific sensitizing agent fulfills in a striking way the postulates of Cooke, namely a history of exposure of the individual to the suspected allergen, a positive skin reaction, and lastly the artificial reproduction of the allergic manifestations following the absorption of the sensitizing substance.

### III. VALUE OF DESENSITIZATION COMBINED WITH VACCINE TREATMENT

The rôle which bacterial infection plays in relation to hay fever and asthma has long been recognized,<sup>22 23 24 25</sup> but much less stressed of late years because of the growing interest in the allergic factors underlying these conditions. In hay fever a

complicating infection has been shown to exist not only in those patients whose symptoms occur irregularly throughout the year, but also in the seasonal cases. It is very difficult to determine in every instance whether the hypersensitive swollen mucous membrane antedated the appearance of secondary infection or whether the reverse is true. However that may be, the clinical results obtained in the treatment of hay fever with pollen extracts alone are frequently incomplete. From their observations in 1919, Frank and Strause<sup>24</sup> concluded that pollen treatment alone did not give as complete relief from symptoms as combined treatment with pollen and bacterial vaccines. This has been our experience more particularly in the perennial cases complicated by chronic nasal sinus infection.

The coexistence of secondary infection in the hypersensitive asthmatic patient is even more common and supports strongly the rationale of combined desensitization and vaccination treatment. It is a matter of frequent observation, for instance, that the patient who develops asthma as a complication of hay fever may at first have symptoms of bronchospasm only during the pollinating season, but sooner or later it is found that this simple hay-fever asthma does not cease abruptly with the pollen season. Cough, wheezing and expectoration of a thick and abundant sputum continue out of season. This change has been brought about by secondary infection of the respiratory tract. Indeed in the average clinic these mixed cases of asthma far outnumber the simple hypersensitive ones. In them desensitization has not, in our experience, given as good results as that obtained by desensitization combined with vaccine therapy.

#### IV. SUMMARY AND CONCLUSIONS

1. Careful history taking is of the greatest importance in the study of the asthma and hay fever patient. Particular efforts should be made to determine whether there is a history of unilateral or bilateral inheritance. The existence of an inherited predisposition or the allergic constitution determines in large measure the effectiveness of specific treatment in the individual patient. Occupation and environment help to explain certain instances of asthma and hay fever that cannot be accounted for in any other way.

2. It is a fallacy to expect a positive skin reaction in all cases of asthma and hay fever. Unless the epidermal cells are sufficiently sensitive they will not react to sensitizing substances applied to the skin. That instances of pollen and food hypersensitiveness occur in which constitutional symptoms are present, but positive skin reactions absent, even on repeated tests, has been emphasized by many workers in this field.

3. It is not necessary to test every patient with every allergen. The experience of many well-organized asthma clinics in this country has shown that the use of a limited number of well-selected

sensitizing substances derived from pollen, animal epidermal, food and miscellaneous origin will serve to detect the presence of sensitization in the majority of hypersensitive patients. Only the more obscure cases need be studied more exhaustively.

4. Most observers are now in accord that elimination therapy or desensitization does not alter the skin reactivity of the asthma or hay fever patient. The freedom from symptoms which usually follows such treatment may be explained by the temporary establishment of an equilibrium or balance during which the reacting cells are less likely to respond to the action of sensitizing substances. The threshold of reactivity of the hypersensitive individual has been raised for the time being. This balance may again be upset by many factors—psychic, nervous, environmental, and particularly by secondary infection of the upper and lower respiratory tracts.

5. The histories and treatment of a number of patients followed over a period of from one to eight years have been presented. These illustrate in particular the importance of secondary infection in many of the hypersensitive types of asthma and stress the value of combined desensitization and vaccine treatment.

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## DISCUSSION

J. MARION READ, M. D. (870 Market Street, San Francisco).—In this comprehensive paper Doctor Hurwitz has given a good survey of the field of allergy as it relates to asthma and hay fever, and has published some convincing case histories. He implies that every case of asthma has an allergic background, which belief is held by many workers in allergy, but he says that skin reactions are not obtainable "unless the epidermal cells are sufficiently sensitive." My experience in testing these patients with proteins has led me to believe that a degree of sensitiveness sufficient to produce a reaction of the mucosa of the respiratory tract to some protein will be accompanied by sufficient skin sensitiveness to produce a reaction.

The claim that every asthmatic is allergic to some foreign protein is difficult to prove. The same cannot be said of hay fever, however, for persons who suffer from this complaint react to, not one, but several pollen extracts of plants whose pollinating season coincides with the period of the patient's disability from this disease. The etiologic relationship of foreign protein to asthma is just as clear in some cases and the pathologic physiology of asthma and hay fever seem to be the same, but contact with foreign protein does not seem to be essential to produce an asthmatic paroxysm.

A very highly sensitive nervous mechanism seems to be present in the asthmatic individual who may be likened to a loaded gun: any one of a number of stimuli may pull the trigger, mechanical irritation, as from smoke or dust, temperature and humidity changes, contact with foreign protein and even purely nervous stimuli. Emphysema and bronchitis frequently complicate the picture, the latter only, amenable to treatment, one procedure being the administration of vaccines as Doctor Hurwitz emphasizes.

I hunt in vain for mention of "reflex asthma," which term used to afford such a good talking point for nose and throat operations. I note, however, that one of Doctor Hurwitz' patients still possessed tonsils which he had removed. Practically all the asthmatic patients I see have already lost their tonsils and undergone one to six nasal operations.

Whether or not every case of bronchial asthma starts as an allergic asthma remains a disputed point, but certainly the mechanism exists for reflex stimuli to be effective in "pulling the trigger." Duke describes what he calls physical allergy in certain individuals the mechanism of which must be reflex. Whether or not stimuli at distant parts of the body can initiate an asthmatic paroxysm is more difficult

of demonstration. Within the past month I have tested two individuals for protein sensitization who were nonreactive to any protein, but one told me that if she moved a foot to a cold spot in the bed at night it caused her to sneeze; and the other had a similar experience if he put an arm out into the cold air while in bed. While sneezing and choking with a paroxysm of asthmatic breathing are not the same thing they are related, and the mechanism by which one is evoked may play a part in the production of the other in certain individuals.

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I. C. SCHUMACHER, M. D. (University of California Hospital, San Francisco).—Doctor Hurwitz has presented an excellent and conservative estimate of the rôle of hypersensitiveness and infection in asthma and hay fever, substantiated by and illustrated with some very instructive and well-selected case histories. I find myself in agreement generally with all his statements, but would be inclined to modify the first sentence in his opening paragraph to include even the specialists in this field of allergy or hypersensitiveness. Certainly a cursory review of the recent literature shows considerable lack of agreement among careful observers.

The importance of careful history taking is properly stressed by Doctor Hurwitz, especially the possibility of an allergic family history which greatly increases the chances of hypersensitiveness in the person under investigation.

What Doctor Hurwitz writes in regard to the negative skin tests in allergic cases is, in my experience, more likely to be true in the allergic skin conditions than in bronchial asthma and hay fever. In the former, one frequently fails to obtain, especially in adults, any positive tests even on repeated skin testing, although the clinical history points conclusively to some article in the diet the omission of which is followed by a clearing up of the skin condition.

The difficulty of estimating the percentage of positive skin reactions in bronchial asthmatics lies at least in part in the problem of differentiating those cases which are solely of infectious origin from the truly allergic cases. Complete exclusion of the former would, in my opinion, increase the number of positive skin reactions in the allergic cases well over 50 per cent.

Certainly in hay fever cases it is the rule to obtain positive skin tests for one or many proteins of the inhalant group. These remarks refer in the main to adults with whom we have had the most experience. The nature of the specific substance in dust responsible for the positive skin test is, as Doctor Hurwitz emphasized, still unsettled. Certainly it is very difficult to prove that it is a new and specific substance when one realizes the great multiplicity of substances which take part in its origin. It is very important, however, to include a good autogenous or stock dust extract in the routine tests. But it should be further emphasized that intradermal tests should always be controlled by testing a number of nonallergic individuals to ascertain the degree of nonspecific reaction obtainable. Such controls are necessary for the proper interpretation of the intradermal tests on the person under investigation.

My limited experience in the treatment of hay fever is in line with that of Doctor Hurwitz in that a certain percentage of the perennial cases respond better to combined treatment with specific substance, usually protein, and bacterial vaccine than to either alone, but accompanied by conservative treatment of whatever pathological conditions might exist in the throat, nose and paranasal structures.

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DOCTOR HURWITZ (closing).—The valuable discussions of Doctors Read and Schumacher have called attention to several important points which merit further comment.

Although it is generally recognized that secondary infection serves as a great stumbling-block in the treatment of the sensitive asthmatic and hay fever patient, the great importance of primary infections of

the upper and lower respiratory tract in the etiology of asthma and hay fever is only now receiving due emphasis. As Doctor Schumacher has well pointed out, it is important to classify these patients into at least two groups—those in which hypersensitiveness and those in which infection is the primary etiologic factor. In our experience many of the disappointing results obtained in the asthma or hay fever patient whose symptoms may be the result of sinusitis, bronchitis, pneumonia, influenza, or pertussis, are due to a fruitless search for evidences of sensitization. Usually many and repeated skin tests are done without reward, whereas the clearing up of a sinusitis or a bronchitis may bring about the desired result. The best results in this group of patients can be obtained only by the closest coöperation of the rhinologist and the internist devoting his time to this work.

The view suggested by Doctor Read that certain forms of asthma and nonseasonal hay fever are due to reflex action from nasal lesions has been largely sponsored by rhinologists. On theoretical grounds the conception is supported by the immense area of peripheral exposure offered by the membranes of the respiratory passages. This knowledge alone should make it desirable to correct every nasal anomaly or focus in the nose, throat and paranasal sinuses in every asthma and hay fever sufferer, but more particularly in the nonsensitive group. Even in the absence of any sources for nasal reflexes recognition of the existence of a highly sensitive nervous mechanism in many asthma and hay fever patients is important in treatment. Doctor Read has stressed this point in a very lucid manner. Perhaps our failure to recognize this constitutional defect or our inability to cope with it successfully will also help to explain some of the disappointing results.

## THE LURE OF MEDICAL HISTORY

IMHOTEP\*

Patron of Physicians and Deity of Medicine in  
Ancient Egypt

By L. H. GARLAND, M. D.  
*San Francisco*

MANY centuries before the exodus of the Israelites from Egypt,<sup>1</sup> long before the recognition by the Greeks of Asklepios as their legendary god of medicine,<sup>2</sup> long before the days of Homer,<sup>2</sup> before the birth of Hippocrates,<sup>3</sup> there lived in Egypt a distinguished leech, far-famed for his skill in healing." His name was Imhotep and in his own time he was physician to the court of King Zoser, astrologer to the priests of Re and chief lector-priest of Memphis. He dwelt in the early days of Egyptian greatness and helped not a

\* So many passages in the above article are transcribed or abstracted from Hurry's and Jayne's and other excellent books that no attempt has been made to mark them all, as the numbers would only be confusing. Acknowledgment is gratefully made to all of them, but especially to:

Hurry, Jamieson B.: Imhotep, Oxford Univ. Press, 1926, and B. M. J. for March 31, 1928, page 565 (No. 3508).

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Budge, Sir E. A. Wallis: The Gods of the Egyptians, etc. Holmes, Bayard & Kitterman, P. G.: Medicine in Ancient Egypt, 1914.

Guest, E. M.: Ancient Egyptian Physicians B. M. J., April 17, 1926, page 706.

1. Circa 1230 B. C.
2. Circa 850 B. C.
3. Circa 460 B. C.

little, perhaps, in the shaping of those ideals in which the fullness of the Egyptian civilization was later accomplished. But, before delving into what scanty biography we as yet possess of him and describing the sequence of events which culminated in his being made the patron of Egyptian medicine, it may be of interest to look back some five thousand years or so and briefly survey the medical life of his time.

Our information on Egyptian medicine comes from the study of hieroglyphic inscriptions on temples, tombs and statues, from the various medical papyri and from the references made in the Greek and Roman classics to Egyptian medicine of their day. Of these, the papyri seem to be the most important.

The medical papyri were written in hieratic script and deal for the most part with the treatment of disease. They are, Breasted thinks, transcriptions by scribes from still older treatises which have either perished or are still undiscovered. The scribe, while master of a careful brush, was often so totally ignorant of medicine that when confronted by a special picture-sign (such as a hewn mandible) his imagination failed him and the reproduction is unintelligible. So that there are still many gaps in the translation of some of them. The main portions of their texts are, however, decipherable and, being transcriptions from writings in earlier papyri or tablets, which in turn were "devised by the gods and therefore were not subject to improvement by man" they are probably of extraordinarily ancient origin and substance.

The story of their elucidation is very interesting, doubly so to us since a doctor<sup>4</sup> was so intimately connected with the earliest attempts at deciphering them. As the originator of the undulatory theory of light, Thomas Young is familiar to all of us, but as a student of Egyptology his studies of the Rosetta stone (commenced in 1814) have given additional honor to his memory. This stone, accidentally found by Napoleon during his campaign in Egypt (1799) and later by the fortunes of war, falling into the hands of the English (1802) gave the clue to the solution of the hieroglyphics (which had remained undeciphered for nearly two thousands years). It is covered on one side by inscriptions in three sets of characters, the upper portion (much broken away) in hieroglyphics, the middle portion in demotic Egyptian, the lower portion in monumental Greek. This demotic or enchorial script is an abbreviated form of the hieratic (in which most of the papyri are written) and the hieratic in turn is a simplified system of hieroglyphics. Thus, in later Egypt,

4. Thomas Young was born in 1773 in Somersetshire. At twenty he could read French, Italian, Latin, Greek, Hebrew, Chaldean, Arabic, Persian, Turkish and Coptic. In 1793 he entered St. Bartholomew's Hospital as a student; conceived the undulatory theory of light in 1801; was foreign secretary to the Royal Society in 1802; took the B. M. at Cambridge in that year, and the M. D. in 1808. He died in 1829.



The deceased  
Hunefer kneeling  
in prayer before

Ra

Ten

Shu

Tefnut

Keb

Nut

Horus

Isis

Nephthys

Hu

Sa

Uat-est

Uat-mekt

Uat Ament



Anubis leading  
Hunefer into  
the Judgment  
Hall of Osiris.

The balance  
with the head  
of the god-  
ness of Truth  
on the pole.

Anubistest-  
ing the  
tongue of  
the balance.

Am-mit, the  
Eater of the  
Dead, a mon-  
ster, part  
crocodile, part  
lion and part  
hippopotamus.

Thoth, ibis-  
headed, the  
scribe of the  
gods, record-  
ing the result  
of the Weigh-  
ing of the  
Heart.

The deceased be-  
ing introduced to  
Osiris by Horus,  
the son of Osiris,  
and his Avenger.

Osiris Khenti Ament, the Great God, seated  
in his shrine of fire, on a throne which is  
set by the stream of the Other World,  
wherefrom springs the lily on which stand  
the four Children of Horus. In front of  
Osiris is the Eye of Horus, and behind him  
stand the goddesses Isis and Nephthys.

From the  
Papyrus of Hunefer in the British Museum, (No. 9901).

The Great Judgment of Osiris, the Weighing of the Heart in the Balance. (From the Hunefer Papyrus in the British Museum.) (Was this routine at Necropsies in the days of the early Pharaohs?)

TEXTS: A—A prayer recited by the deceased whilst his heart is being weighed before Osiris. Chap. XXXB of the Book of the Dead.

B—The Address of Thoth to the gods announcing the innocence of the deceased, and the result of the weighing.

C—Address of Horus, the Avenger of his father, Osiris, who introduces Hunefer to Osiris, and informs him that the tongue of the Balance has remained unmoved, i.e., that the heart of the deceased counterbalances the symbol of Truth exactly.

while there was but one spoken language there were three methods of writing.

So far, seven medical papyri have been discovered:

(1) The Kahun Papyrus (circa 2000 B. C.).<sup>5</sup> This, though incomplete, is the oldest. It is but a short text of three columns dealing with the symptoms, diagnosis and treatment of conditions gynecological and veterinary (volume, Griffith "Petrie Papyri"). It is amusing to note, in passing, that Prescription No. 31 gives the directions for determining the sex of the unborn babe.

(2) The Edwin Smith Papyrus (ca. 1600 B. C.) the English translation of which has just been finished by Professor Breasted, appears to be "the oldest nucleus of really scientific knowledge in the world," besides being the most important document in the history of medicine. A roll about fifteen feet long by one foot wide, it contains twenty-two columns in writing (or 500 lines). It deals in an amazingly systematic way with internal medicine and surgery, containing forty-eight case histories of injuries to the upper half of the body, with a discussion on the examination of patients, and on diagnosis, prognosis and treatment . . . and there it ends abruptly. On the back of it are five pages of magic incantations. Breasted thinks this manuscript may have been a textbook in that first medical school of history, the Hall of the House of Life at Saïs.<sup>6</sup> This

papyrus mentions lint, made from vegetable tissue, sutures, padded splints (using linen) and so forth.

(3) The Hearst Medical Papyrus (ca. 1600 B. C.) consists of eighteen pages of matter not unlike that contained in the Ebers (v. Reisner, 1905).

(4) The Westcar or Berlin Papyrus 3033 (ca. 1600 B. C.) contains twelve pages of magic and wonder stories of the sorcerers (v. Erman, 1890).

(5) The Ebers Papyrus (ca. 1500 B. C.). This contains one hundred and ten pages in different dialects, a beautiful facsimile copy of which, printed at Leipzig in 1875, may be seen in Lane Library. Von Klein describes fifty chapters, beginning with one entitled "Introduction with Incantations" and passing on through such subjects as "Ascites and Urinary Disorders of Children," "Disease of the Liver," "Ulcers, Rheumatism and Gout," it ends up with notes on physiology and anatomy and a final chapter on the "Surgical Treatment of Abscesses and Tumors." Among the surgical notes is one headed:

"Instruction on Disease of Fat—If thou findest disease of fat in any part whatsoever of the body of a person, and findest that it goes hither and thither under thy fingers, and it trembles, thy hand being still, then say thou of it 'It is a fatty tumor, it pains, I will treat it.' Treat thou it with the knife, treat it as one treats open wounds."

Again—

"Instruction on Disease of Suppuration—If thou findest a suppurating tumor in any member whatsoever of a person, and findest its apex elevated, defined and of a round form, then say of it 'It is a suppurating

5. Actually two separate papyri (v. B. M. J., 1893).

6. Restored by the priest-physician Uzahor-resenet at the command of Darius I (there being a statue of this physician, and with an inscription commemorating the event, in the Vatican).

tumor that revolves in the flesh; it pains. I will treat it with the knife.' There is something like milk juice in it; afterwards something comes out of it, like wax; it is sacciform; if any remains in the sac then it rolls around."

Lengthy descriptions are given of the vascular system and the widespread influence of disordered cardiac action is recognized. It reads:

"When the heart is diseased its work is imperfectly performed; the vessels proceeding from the heart become inactive, so that you cannot feel them, they become full of air and water."

Thus, while misunderstanding its mechanism, they realized the relation of the pulse to the heart. The idea of "air" in the arteries was of course the result of erroneous conclusions based on post-mortem conditions.

(6) The Brugsch or Berlin Papyrus 3038 (ca. 1350 B. C.<sup>7</sup>) consists of twenty-three pages of hieratics similar to those of the Ebers Papyrus.

(7) The London Medical Papyrus (ca. 1000 B. C.) has nineteen columns dealing partly with medicine, but with so much interspersed magic that it has been termed a mystical papyrus. It exemplifies the increasing tendency to reliance on the magic arts with the decline in Egyptian culture.

Osiris of Mendes (Dedu) in the Delta was the Nile-god. He also symbolized the after-life and the Tomb was his kingdom. In the cult of the dead this after-life was a very active one and none too gloomy if one's wants were well supplied. The dead required food, drink, clothing, utensils and servants, as when on earth, and providing for the deceased thus became a heavy financial burden. However, as the years passed by it is probable that the survivors could not help noticing that such offerings remained unused. So, whether to supply his wants in more appropriately shadowy form, or to decrease the expense of burial, it became the custom to display on the walls of the tomb all the necessities of life and sometimes even to illustrate them by models. Hence we see animals, servants, even arable fields with workers in them portrayed in these interiors, and many invaluable records of minute details of Egyptian life have thus been handed down to us.

The Egyptians appear to have had few or no theories of disease, and they never resigned themselves to the idea that death was natural or inevitable. Life, once begun, should continue indefinitely. Disease or death were most often the result of curses or attacks by a demon, by an

evil-eye, an animal or even by an inanimate object. Death was practically assassination. They wore their amulets and charms, especially on the unlucky days, such as the intercalary. However, the early priest-physicians made many careful observations and gave several clear descriptions of diseases, so that at least 250 were distinguished, including gastric and intestinal disorders, asthma, the smallpox, anemia and so on.

In treatment they showed a varying mixture of rationalism and mysticism, the latter appearing to preponderate as their civilization waned. In the *Odyssey* (4:227) Homer writes of "The abundant herbs of Egypt, healing and beneficent, used by men more skilled in medicine than any of human kind." Many familiar drugs, such as hyoscyamus, opium, castor oil and so forth were used, though all prescriptions were preceded by the incantations without which they would be "quite useless." Surgery was performed with flint knives, drawings of operations such as venesection, circumcision, lithotomy and castration being found on the walls of desert ruins. Ribs of date-palm leaves were used as splints in the early days of the third millenium, and such are even in use there to this day. The ancient Nubian remains show many cases of fracture, perfectly set and well healed; fractures of the femur and cranium and of the ulna near the wrist being quite common. The latter injuries were probably sustained in attempting to ward off the naboot, a sort of staff used in one of the favorite pastimes of the ancient Egyptians, which resembled the old English quarterstaff play.

Doctors were frequently ecclesiastics and though Herodotus seems to have thought they were all specialists, the reverse is probably the case. Herodotus wrote:

"... the practice of medicine is so divided up amongst them that each physician is a healer of one disease and no more. All the country is full of physicians, some of the eye,<sup>8</sup> some of the teeth, some of what pertains to the belly, and some of the hidden disease."

The Egyptians, being indefatigable organizers, had overseers, scribes and other experts in every department of state. It even appears that the medical profession was organized apart from the public health service.

The doctors met at temples, many of which were built as memorials to the early healing gods, and some of which contained books of prescriptions inscribed "for the turning aside of disease." At Koptos was the Temple of Isis, at Hermopolis that of Toth (where a clinic for the gods is said to have been held during the long battle between Horus and Seth for the succession), and at Neith that of Nekhbet. Toth, the ibis-headed moon-god,

7. It treats of twenty-five different subjects: medicines against worms, diseases of the breast, fumigations, diseases of the heart, of the legs, ulcer cures, diseases of the vessels, a cure for hematuria, for bellyache, concerning fertility of women, disease of the ear and many magic incantations. Many of the medicines and diseases mentioned have not been deciphered yet or are unknown.

8. Despite many ocular prescriptions there is only one definite mention of an oculist. He is called Tpy, "Palace Consultant of Making to See" (Per Aa sehed Maa).



the origin of all learning, was the inventor and patron of the medical sciences for the early Egyptians. But later Ptah, and finally, in the time of the Ptolemies, Imhotep became the reigning deity, being included in identity with his predecessors in many inscriptions.



Imhotep (as Deity of Medicine).

From his recent work on the Edwin Smith Papyrus, Breasted thinks that the ancient Egyptians were curiously advanced in clinical examination, diagnosis and therapy. They knew the position of the stomach and intestines, that the great blood vessels run from the heart and supply every part of the body, that the folds of the brain lie in convolutions and that there is a membrane covering them. They appreciated the value of dissection, though no word for "nerves" indicating that they identified them as such, is found in the script. And while their therapy placed much faith in magic, who can say that all the remedies in use today are prescribed with a view to known pharmacological action?

It was in the early days of times like these that Imhotep appears. I-Em-Hotep or Imhotep appears to have been born in Ankhtowe, a suburb of Memphis, on the sixteenth day of Epiphi, the third month of the harvest season. Since he was a contemporary of King Zoser, whose reign began about 2980 B. C., it is probable that he was born about 3000 B. C. His father was named Kanofer and was a distinguished architect; his mother was named Khreduonkh. Of his early days we know but little, but, as Hurry says, his education must have been excellent, growing up as he did a sort of Aristotelian genius. He seems to have had all of the ten talents and to have used most of them, for in his own time, he was known as physician, architect, astronomer, sage and chief lector-priest.

While grand vizier under that famous Pharaoh of the Third Dynasty, Zoser, he apparently designed or was connected with the construction of the remarkable Step-Pyramid of Sakkarah. This pyramid lies near Memphis, and is a transition between the earlier mastaba tombs and the later true pyramids. It later became Zoser's tomb.<sup>9</sup> His post of Kheri-heb or Chief Lector-Priest was intimately concerned with funeral rites and so,

9. Constructed of blocks of limestone, this pyramid is the earliest large stone structure of history; the halls and corridors are lined with blue and green tiles of inlaid faience, bearing the King's name and titles.

must have given him ample opportunity for post-mortem observations.

But Imhotep's chief claim to our interest is as a healer. He was court physician to the King after his viziership and, while none of his medical works have been discovered, the fact that he was deified as a healing god after his death shows that his attainments in that direction must have been rare. Practically none but the Pharaohs themselves were ever raised to the rank of godhead. Of his later years, as of his early ones, we know but little. He was buried outside Memphis, probably near King Zoser's mastaba, which is near the present village of Abusis. (Among some tombs recently discovered there, is said to be that of Imhotep, but, so far, the report has not been confirmed.)

After his death his fame grew and even as early as 2800 B. C., or about a century later, he was raised to the rank of demigod. Many bronze statuettes depicting this stage of his career have been found and show him as an ordinary man, clad in simple garments and without the sceptre, ankh or beard of the gods. He is usually seated and has a roll of papyrus on his knees. Then, in the Persian period, some two thousand years later, (ca. 525 B. C.) his apotheosis to full deityship took place. He was called "Son of Ptah and of Sekhmet" (thus becoming one of the great Triad of Memphis, and portraits of him now show him carrying the ankh (crux ansata), the sign of godhead.

At first at Memphis and later throughout Egypt and even into Nubia, Imhotep was accepted as god of medicine, and worshipped at temples of healing dedicated to his name. The Temple of Memphis appears to have become a sort of hospital and school for magician-physicians. The temple at Philæ, a beautiful example of Egyptian architecture (built by Ptolemy IV, Philopator) still exists in large portion, although immersed in recent years by the Assouan Dam. A third small temple existed at Thebes.

This veneration continued for many years but commenced to wane after the Grecian conquests. By the time the Romans came, Imhotep had practically become merged with Asklepios, and thus became identical with the Æsculapius of the new masters. The spread of Christianity (especially after the conversion of Constantine, about A. D. 300) produced further change and finally, after the conquest of Egypt by the Moslems in the middle of the sixth century, worship of the ancient deity practically ceased.

So ends, for the present, the brief history of Imhotep. Future excavations may uncover further details and shed more light on the personality of one who, as Osler said, is the first figure of a physician to stand out clearly from the mists of antiquity. And while posterity, swayed for some two thousand years by Græco-Roman thought and influence, has attributed to Asklepios the honor of being the Deity of Medicine, it will be interesting to see if future generations will correct the error, restoring Imhotep to ancient fame and place.

2200 Hayes Street.

## CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

### PHENOBARBITAL SODIUM\*

NEW THERAPEUTIC USES IN TABETIC CRISES,  
HERPES ZOSTER, AND MORPHINISM

By LEWIS GUNTHER, M. D.

AND

HAROLD M. F. BEHNEMAN, M. D.

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THE use of phenobarbital (luminal) and its salts has become a well-established procedure in drug therapy. Bauguss<sup>1</sup> and von Hosslin<sup>2</sup> have reported favorably upon its use in morphinism. A fairly complete review of the literature has to our knowledge failed to uncover a reported record of its use in tabetic crises or in herpes zoster.

One of us (L. G.) observed the beneficial effects of the use of phenobarbital sodium in the treatment of tabetic crises and morphinism while at the Los Angeles General Hospital. The drug was generally employed for these conditions.<sup>3</sup> At the semi-annual meeting of the Pacific Interurban Clinical Club, December 1927, it was learned that Dr. W. J. Stone of Pasadena introduced sodium phenobarbital at the Los Angeles General Hospital while working on the control of convulsions in tetanus. Dr. L. Adelstein, resident neurologist at the same institution, has used phenobarbital sodium in a large number of cases of tabetic crises in out-patient and hospital practice and reports<sup>4</sup> that it is highly efficacious for the relief of pain in this disease. He prefers it to morphin, one injection of one-tenth gram (grains 1½) ordinarily proving sufficient to control an attack.

We have used phenobarbital sodium on the medical service of the University of California Hospital in a variety of conditions, for the control of severe pain, including such diseases as tabetic crises and herpes zoster. The success obtained with the drug as an anodyne in these conditions warrants this short report of its efficacy. We have also used it in the treatment of the withdrawal symptoms of morphin addiction, and report another case in which the drug has controlled such symptoms.

The method of administration was essentially that used at the Los Angeles General Hospital. One-tenth gram (grains 1½) of the powder was dissolved in sterile distilled water in the manner of preparation of morphin for hypodermic use, except that further boiling of the solution was avoided.<sup>5</sup> The drug was given subcutaneously immediately after preparation.<sup>5</sup> Its action became apparent in from ten to twenty minutes and relief of pain occurred in twenty to thirty minutes. It was equally effective as an anodyne in herpes zoster and gastric crises of tabes. It appears to be more helpful for the latter than any drug we have used, proving more effective than morphin in the

case we are reporting. One injection was sufficient to control the attack.

The work of Collins and Tatum,<sup>6</sup> who pointed out the depressant action of phenobarbital on the cerebral cortex, offers a rational basis for the use of the drug as an hypnotic in the treatment of the withdrawal symptoms of morphinism and as an anodyne for the control of severe pain in such conditions as tabetic crises and herpes zoster.

#### REPORT OF CASES

*Tabes Dorsalis with Gastric Crises.*—J. H., white, male, age 53, was first seen in 1923 during an attack of epigastric pain accompanied by vomiting. He had similar attacks with lightning-like pains about twice a week for the past ten years. Examination showed hyperesthesia in the back, epigastric pain, and vomiting. The neurological signs were a positive Romberg, Argyll Robertson pupils, and absence of deep reflexes. The blood and spinal fluid Wassermanns were three plus positive.

Since 1923 he has been under continuous antiluetic treatment and has had one course of bismuth and three courses of mercury and arsenic, the latter including one course of tryparsamid. For relief of pain he had been given a total of 110 cubic centimeters of aolan at various times; roentgen-ray therapy to the lumbar region and morphin; codein and acetyl-salicylic acid; but none of the above had more than a temporary effect, often not lasting long enough to abort another attack.

The patient recently appeared at the University of California clinic suffering with repeated attacks of gastric pain as in the past, associated with vomiting. He was in great distress at the time and was given one-tenth gram (grains 1½) of phenobarbital sodium subcutaneously. Complete relief of pain was noted in twenty minutes, and the attack did not recur. For the first time, apparently, administration of a single drug had given more than fleeting relief.

*Herpes Zoster.*—G. F., white, male, age 61, laborer, appeared at the out-patient department for the treatment of diabetes mellitus in August 1926, and was placed on a diet of 2700 calories and sixty units of insulin divided into three doses. This was later reduced to thirty-five units given in the morning and evening. The fasting blood sugar content on October 3, 1927, was 0.130 per cent.

On October 12, 1927, he appeared again at the out-patient department, complaining of severe pain in the back and chest, and of the appearance of small "pimples and boils." Examination showed vesicles of herpes zoster anteriorly and posteriorly on the right, over an area corresponding to the root distribution of spinal segments dorsal four to dorsal six. He was suffering from severe pain and begged for relief.

Phenobarbital sodium, one-tenth gram (grains 1½) was given subcutaneously. Within thirty minutes he was comparatively comfortable, having only an occasional twinge of pain. He was sent home with instructions to take phenobarbital, grams one-tenth (grains 1½) by mouth three times a day. It is worth noting that phenobarbital by mouth was not so effective in this patient as phenobarbital sodium administered subcutaneously.

*Morphin Addiction, with Withdrawal Symptoms.*—E. G., white, male, age 45, unemployed, was admitted with marked ascites and other signs of cirrhosis of the liver. He possessed more than the average type of intelligence found among morphin addicts, and cooperated with us in every way. His arms and chest presented the typical pigmented scars of the opium user. Although the amount he had taken daily could not be ascertained accurately, there was reason to believe

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that it was fairly high and could be estimated at between five and seven grains daily.

Morphin was wholly withdrawn. He was strictly isolated from visitors, received no mail and, to our knowledge, received no morphin from outside sources. On the following day he was in considerable distress and begged for relief. Phenobarbital sodium in a dose of one-tenth gram (grains  $1\frac{1}{2}$ ) was administered twice daily by hypodermic subcutaneously for two days. On the third day this was increased to four times because of restlessness, and this amount was continued daily for three days. Thereafter the dose was decreased and the drug administered three times daily, with no appearance of withdrawal symptoms. After a week he was given phenobarbital sodium only twice a day, and two days before discharge it was administered only at night. There were no withdrawal symptoms after the third day.

Phenobarbital sodium has been found to be of value in our hands as a substitute for morphin for injection in the treatment of morphin addiction, and for the control of pain in certain cases.

University of California Hospital, Parnassus and Third Avenues.

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### MILROY'S DISEASE\*

#### REPORT OF TWO CASES

By CLARENCE W. PAGE, M. D.  
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IN 1892, under the title "An Undescribed Variety of Hereditary Edema," Dr. W. F. Milroy of Omaha brought to the attention of the medical profession a type of case of which no previous accounts had ever been published. He sent his report to Doctors Osler and Welch of Baltimore, and they stated that this disease was absolutely new to them and that they were unable to find anything in the literature on the subject.

Milroy presented the case of Mr. H., a clergyman of middle age, whose legs were obviously enlarged from birth, but caused him no inconvenience other than local weight and clumsiness. The most interesting factor was the apparent hereditary character. A table of genealogy was presented showing a number of instances of the condition extending through six generations. In some instances but one leg was affected, while in others both were involved. The upper limit of the swelling was fairly sharply limited either at

the ankle, the knee or the hip. In many instances the edema was present at birth, but in others it appeared later, sometimes seeming to follow injury to the leg. Once it appeared, however, it persisted, though it varied somewhat in degree at times. There are no changes in the texture of the skin and the swelling pits on pressure, returning slowly to its previous condition.

Doctors Osler and Welch classed it as a form of angioneurotic edema, though other manifestations of a neurotic character were absent. Others believe that it has some endocrine origin, and one of Milroy's cases which had a swelling of one testicle, improved following the removal of the enlarged testicle.

The characteristics may be summarized as follows:

1. That the disease runs in families.
2. That there is no apparent cause for the edema.
3. That the edema is restricted to the legs.
4. That the condition is painless, except during attacks of exacerbation, and that it does not interfere with the activity of the patient except through weight and clumsiness.
5. The permanence of the edema, once established.
6. Remarkable acute attacks which may follow injury.

Bandaging of the legs with an elastic bandage will limit the swelling somewhat, but there is no treatment known which otherwise influences the disease.

CASE 1. Mrs. J. C., age twenty. She consulted me first, March 1928, at which time she was about seven months pregnant with her first child. She had an enormous edema of both legs rather sharply limited at the knees, except that about six weeks previously she had wrenched the left knee and had an acute synovitis with considerable fluid in the joint. She had always been well except for measles, whooping-cough and chickenpox in childhood. She had a slight cardiac enlargement and a soft mitral systolic murmur. Her blood pressure was 114/50. The urine was normal. Her menstrual history was normal except that the menses were not established until the age of sixteen. The edema of her legs had been present since birth and caused her no particular inconvenience. Her father has an edema of one leg, but she states that this was not present till about a year following a fracture of the leg. Her mother is normal. One brother born in 1918 has since birth had an edema of one foot, which the mother attributes to having marked him by seeing a man with edema of his legs. Two other brothers, sixteen and twenty, are normal.

On April 11, about six weeks before term, she had a severe hemorrhage from a marginal placenta previa and labor was easily induced by quinin followed by one dose of pituitrin m. v. She delivered a female child weighing five pounds. The baby showed a marked edema of both legs up to the hips and both hands to the wrists. The swelling of the hands has disappeared, but the edema of the legs has shown little change. The skin appears normal.

Both the mother and father show a negative Wassermann.

CASE 2. Baby S. Born April 22, 1927. She was delivered at about three weeks before expected term and weighed 6 pounds  $10\frac{1}{2}$  ounces. She was normal except that she showed a marked edema of both feet up to the ankles, and both hands up to the wrists. Later on a trace of albumin was found in the urine by her physician. The mother was well and had no abnormality during her pregnancy. This was her second confinement, and the other child, a girl, is normal. At one year of age the edema of the feet persists, though that of the hands has disappeared.

\* From service in Alta Bates Hospital, Berkeley.

2490 Channing Way.

# BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

## ADEQUATE ARTERIAL TENSION

**J. Marion Read, San Francisco**—As justification for raising a controversial subject at this usually quiet bedside. I quote a sentence from Sir James Mackenzie published fifteen years ago: "There has been so much nonsense talked and written about high blood pressure that I am constrained to draw attention to our extreme ignorance of the cause and consequence of raised blood pressure."

While we may know more regarding its consequences than we did in 1913, our ignorance of its cause, or causes, persists practically unchanged. In lieu of information on these points it might be profitable to bedside doctors to review some fundamentals of the physiology of arterial tension which may assist somewhat in understanding the pathological physiology of hypertension.

It is astounding to observe the great interest manifest in a simple, long-recognized physiologic function after the advent of an instrument of precision, such as the sphygmomanometer, enables us to measure and record this function quantitatively. It is just three hundred years since Harvey, in 1628, informed the world that the blood moved through the circulatory system by virtue of pressure exerted upon it during the heart's contraction. Closer to our own time, Richard Bright expressed his belief that the cardiac hypertrophy he had observed in renal disease was due to the associated arterial hypertension. But no great interest in arterial tension was manifest until we began, about twenty years ago, to express it in figures. This interest was so great that it overflowed the profession, and the laity awakened to the fact that there was such a thing as "blood pressure," which could be talked about in figures just like one's weight, age, children, stocks or bonds. And moreover there was a formula by which it was easy to calculate exactly what any individual's pressure should be—just add 100 to the individual's age! Simple—very simple!

When the term "blood pressure" is used, most of us, and all the laity, think at once of systolic pressure. This is largely because the systolic was the only pressure read for the first eight years of clinical sphygmomanometry. After the introduction of the auscultatory method, about 1914, which enabled us to read the diastolic pressure and calculate the differential pressure, our views should have been revised.

The chronological order in which the three pressures became known to us is the reverse order of their physiological importance. We had the roof (systolic) before the foundation (diastolic),

and after all it is the space between (pulse pressure) for which these other two exist.

In general the diastolic pressure measures the relatively stable and constant peripheral resistance which forces shut the aortic valve and must be overcome by the left ventricle in reopening that valve. The force which the heart continues to exert after opening the valve is felt as the pulse and it is this part only of the total systolic force which is effective in moving the blood stream. Feeling the pulse as a guide to the ventricular power yields only part of the answer unless one also knows the diastolic pressure. The pulse pressure is normally about one-half as great as the diastolic pressure; thus two-thirds of the ventricular contraction power is expended in overcoming peripheral resistance and the elastic force of the great vessels, while only one-third is useful in propelling the blood column. The elastic recoil of the large vessels assists, however, in moving the blood during diastole. The intravascular pressure falls somewhat during diastole so that the force necessary to reopen the aortic valve is less than that which causes closure of the valve.

It hardly seems necessary to note that we do not measure the pulse pressure directly but calculate it as the difference between diastolic and systolic pressures. For this reason many writers prefer the designation "differential pressure," referring to its mathematical derivation, rather than the term "pulse pressure," which signifies its physiologic importance.

When, from any cause, the peripheral resistance is increased the myocardium must increase its force of contraction if it is to maintain an adequate circulation. A competent myocardium will hypertrophy and continue to maintain a pulse pressure one-half as great as the diastolic pressure. We frequently see patients with systolic pressures of 180 mm. of mercury and diastolic pressures of 110 or 120 mm. and hypertrophied hearts who get along well; in fact have probably carried increased pressures for many years. They do not consult us until the myocardium begins to weaken. Such beginning failure is frequently accompanied by a drop in the systolic pressure without change, or possibly with elevation, in the diastolic pressure and consequent narrowing of the pulse pressure, or effective part of systole. If this condition persists manifestations of congestive failure develop.

It is thus apparent that the systolic pressure is really the sum of diastolic and pulse pressure and its actual value is of less importance than the ratio of pulse pressure to diastolic pressure. The heart endeavors to maintain this ratio, and an ade-



quate circulation as long as possible. When the myocardium begins to fail the systolic pressure falls at the expense of the pulse pressure with signs of resulting circulatory failure. The hydrodynamics of the circulation just described are true in a general way only as there are many other factors which cannot be considered here; so there are exceptions to the conditions mentioned above. For example, it is possible to have a failing circulation and a normal ratio between pulse pressure and diastolic pressure.

If all this has the ring of "commenting upon the obvious" it must be charged up to a bedside reaction to innumerable articles upon hypertension, its drug and dietary treatment, the writers having chiefly in mind the systolic pressure. Except to avoid an apparent, impending cerebral hemorrhage, all treatment which is not directed toward reducing diastolic pressure should be aimed at aiding the heart to maintain the optimum pressure, even if this be greater than our concepts of what constitutes normal.

But how may we know the optimum pressure for each individual at any given time, and how can it be maintained? That is another, in fact, several, "Bedside" stories.

\* \* \*

**Eugene S. Kilgore, San Francisco**—An interesting topic for debate would be the value to mankind of the blood pressure manometer. The debate would not be very one-sided. Strong points to the credit of the apparatus will occur first to everyone—the advance of medical science by an instrument of precision capable of replacing vague tactile impressions by figures; the light thrown on the clinical cases of nephritis, eclampsia, shock, cardiovascular disease, brain injury, etc.

But the opponents of the apparatus would also have cogent arguments. They would first, in rebuttal, point out that most cases where the blood pressure reading is considered an important item in diagnosis are sufficiently clear to the careful observer without it. Small differences of pressure are usually not very important, and large abnormalities are usually perceptible to the skilled finger on the pulse,\* and are usually accompanied by other distinctive clinical phenomena.

Then would be displayed certain positive disadvantages chargeable to the instrument—its injuries to science, to doctors, and to patients. Science suffers through an unwarranted assump-

tion of accuracy in the blood pressure readings. The disturbing effects of psychic state, position of the body, nonrelaxation of the arm, prolonged cuff pressure, etc., are usually underestimated. The technique itself, especially the criteria for readings, after innumerable publications on the subject, is still poorly standardized and its critique ill understood. For diastolic readings, actually the more important, two indices are in common use, the change of sounds (fourth phase) and the disappearance of sounds; either or both may be quite indistinct, and their separation on the pressure scale, while usually small, is always variable and at times large. Most doctors use and most of the life insurance companies prescribe the auscultatory index for systolic readings—in total disregard of the facts long since established that (a) these readings are farther removed from true systolic pressure than those obtained by the simple palpatory method,\* (b) that the auscultatory method has no advantage over the palpatory in minimizing the "personal factor,"\* and (c), most important, that the "auscultatory gap" or the total absence of sounds in the upper register not infrequently leads to gross error.\*

Injury to the doctor may be found in the disuse atrophy of his clinical powers, which the blood pressure apparatus in common with all other technical diagnostic aids has fostered. This would not be a very strong point in the argument, for it could be shown in rebuttal that the doctor who allows his observation and common sense to be dwarfed by these means would be a poor one under any circumstances.

But injury to the patient is a different matter. Here is the most serious arraignment against the apparatus. Figures have a peculiar fascination; witness by contrast the arduous labor of the salesman of sound bonds, and the fireside mania over the "market" in a popular listed bark stock. Popular interest in such quantities as body weight, blood-sugar level and now hemoglobin percentage (in pernicious anemia) is usually salutary. An adverse fluctuation in the figures excites no apprehension but only renewed therapeutic efforts with success practically assured. But blood pressure, we may as well admit, is still pretty much out of control; and the worst of it is that its sinister significance is often vastly exaggerated in the minds of patients. Over many years we observe patients with essentially benign hypertension whose health (health of mind, to be sure, but nevertheless the principal thing in life) is ruined by the sense of impending disaster. For them psychotherapy is only partially successful. They live in a fruitless endeavor, by regimen and treatments, to reduce blood pressure. They visit the doctor to get their readings; and one of my patients I find has bought a machine with the directions for use, and has taught his housekeeper to make the readings! And the doctor who realizes all this may, to be sure, lessen the ravages of the blood pressure ma-

\* Systolic pressure can be "guessed" with considerably increased accuracy if the following technique is practiced: Place three fingers on the radial artery, preferably the left index finger proximally, the right index in the center and the right second finger distally. Use firm pressure with the distal finger to prevent passage of pulse waves upward by way of palmar arch arteries. Use the center finger for detecting pulse waves, holding it lightly over the artery; and use the proximal finger to observe the pressure necessary to prevent passage of pulse waves. But at the outset raise the center finger, and, by light pressure with the proximal and distal fingers, draw them together, puckering the patient's skin between them; then exert firm pressure with both, and move them apart far enough to admit the center finger to its position but not far enough to stretch the intervening skin. The center finger now rests on unstretched skin overlying an empty segment of artery (and here, by the way, is the proper place to judge the texture of the artery wall, and the impression thus gained is often quite different from that obtained by palpating the distended artery). Now gradually relax the pressure of the proximal finger and note the feeling of pressure when pulse waves first enter the collapsed segment.

\* References: Volhard: *Verhandl. d. Cong. f. in Med.*, 1909, xxvii, 208. Müller and Blauel: *Deut. Arch. f. klin. Med.*, 1907, xci, 517. Kilgore: *Arch. of Int. Med.*, December, 1915, Vol. xvi, pp. 893-954. Sewell: *Am. Jr. Med. Sci.*, 1919, Vol. 158, p. 786.



chine, but he can hardly hope to exclude them from his practice. If he does not take the readings his patient will go elsewhere. And if the doctor declines to divulge his blood pressure readings his patient will often leave with greater apprehension than if he had been told the worst. One very intelligent man who had known of his hypertension for many years visited a doctor in a strange city for some trifling complaint. The doctor measured the blood pressure and said nothing; and the patient asked no questions, but he promptly returned home to wind up his affairs, for he had observed "a look in the doctor's eye" more foreboding than words.

I pass no judgment on the suggested outline of debate. No debate and no judgment are needed. The blood pressure machine is here and must be used, but our use of it will be better if we do not forget its limitations and its positive disadvantages.

\* \* \*

**James F. Churchill, San Diego**—The popular medical subject for lay discussion for the past decade has been "blood pressure," and it is a very difficult one for the physician to handle to the best interest of his patients. The amount of misinformation that patients manage to accumulate regarding this subject is amazing. And their curiosity is no less so. So frequently patients say to me: "Now, Doctor, please tell me just what causes blood pressure." And to such a demand every physician should have an answer. The reply will depend, of course, on the intelligence of the patient, but it should at least be one that will satisfy and if possible dispel some of the absurd notions he may have.

I am sure the medical profession is partly to blame for this state of affairs, for "blood pressure" has become almost a fetish with many physicians. The pressure should be taken in the course of an examination, but the patient should not be told the figures. I explain to the patient that the bare figures mean nothing, and that he will be happier if he does not know them. Minor variations in the readings depress or elate the patient, often without reason and with bad effect. I have had many patients come in with notebooks in which it had been their custom to jot down each date and reading. Nothing could be worse for the peace of mind of the majority of patients of this type. Their spirits go up and down with the mercury in the manometer.

Pressure readings taken on patients at a first examination are rarely correct for that individual. We are apt to overlook the fact that a physical examination by a new doctor is often an ordeal for the patient, producing an increase in heart rate and blood pressure. For this reason the reading at first examination should only be accepted as tentative. Insurance examiners should especially bear this in mind, for a grave injustice may be done a perfectly good risk unless several readings are made on different days.

A great deal can be accomplished if we try to make our patients feel at ease before the examination is begun. This is a little point worth keeping in mind during the history-taking.

Let us take the blood pressure, but let us remember that a blood pressure reading is not a diagnosis. Let us also remember that every patient we see is sick, or suspects he is, so let us be careful not to add to his troubles and worries by calling his attention to the fact that he has a "blood pressure."

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**Barbital Addiction.**—Many conditions legitimately call for the medical use of depressants of the nervous system. The relief of pain is doubtless the most prominent illustration, though it is not the only occasion for the therapeutic administration of potent drugs of this class. Cerebral excitation, sleeplessness and certain disconcerting psychic states often require some counteracting influence in the interest of bodily welfare and avoidance of intense distress scarcely less tolerable than the pains of physical injury. Mankind has long made use of agents that would conduce to relief. Vicious habits have thereby become established when the administration was not supervised by an intelligent adviser such as the physician should be.

Alcohol and opium were formerly our principal hypnotics, but they have been superseded largely by others. In this country the force of law as well as a modified public sentiment has served to hasten the change, which is one of substitution rather than omission. The catalogue of the newer hypnotics is a formidable list of synthetic chemical compounds, some of them exhibiting striking usefulness. Meanwhile the layman has not been slow to discover the potency of the novelties and has often applied them to his desires inadvisedly. New drug addictions have thus arisen and brought fresh problems for solution to the innocent physician. When a single practitioner can report, as Work has done, a hundred cases of acute poisoning or chronic addiction with one of these drugs, the situation is evidently one that challenges serious attention.

Barbital, introduced under the trade name of veronal, has a tremendous and increasing lay popularity for self-administration. Its habit-forming propensities are sufficiently well recognized to merit the special designation of barbitism or veronalism. The opportunity is readily created. Finding himself unable to react adequately to environmental conditions, as Work points out, the man who is either constitutionally or acutely below the standard dulls his sensorium with barbital, just as other drugs are used as a refuge from circumstance. It should be remembered, he adds, that a host of proprietary hypnotics now on the market are of the same chemical series as barbital and may induce in greater or less degree the same results. Poisoning resulting from barbital taken in conjunction with one of its congeners is more difficult of treatment and offers a poorer prognosis. According to Work, addiction to barbital does not stop with the production of moderate euphoria. Judgment, orientation as to time, and insight are probably the most severely harmed of the psychic faculties and are the last to clear up in convalescence. Cases of residual defect fall almost entirely in this class. The mentality in this condition precludes complicated criminality or conspiracy, and the appearance does not inspire confidence sufficient for the consummation of any but the crudest frauds or clumsy impositions on friends. Ethical offenses, as against decency, and minor frauds, such as issuing fundless checks and forgery of an unskilful type, are well within the possibilities. Carelessness may well result in acts of an apparently criminal complexion. The paranoid reactions are usually too fleeting to endanger anyone, but the dulled sensorium may lead to quasi-criminal complaisance with the schemes of others. These are indeed disturbing pictures for the contemplation of nations that are endeavoring with great zeal to free themselves from the more familiar types of drug addiction. The "safe" hypnotics may become menacing to the public welfare.—*Jour. A. M. A.*



California and Western Medicine

Owned and Published by the

CALIFORNIA MEDICAL ASSOCIATION

Official Organ of the California, Utah and Nevada Medical Associations

BALBOA BUILDING, 593 MARKET STREET, SAN FRANCISCO

Telephone Douglas 62

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Subscription prices, \$5.00 (\$6.00 for foreign countries); single copies, 50 cents.

Volumes begin with the first of January and the first of July. Subscriptions may commence at any time.

Change of Address.—Request for change of address should give both the old and the new address. No change in any address on the mailing list will be made until such change is requested by county secretaries or by the member concerned.

Advertisements.—The journal is published on the seventh of the month. Advertising copy must be received not later than the 15th of the month preceding issue. Advertising rates will be sent on request.

Responsibility for Statements and Conclusions in Original Articles.—Authors are responsible for all statements, conclusions and methods of presenting their subjects. These may or may not be in harmony with the views of the editorial staff. It is aimed to permit authors to have as wide latitude as the general policy of the journal and the demands on its space may permit. The right to reduce or reject any article is always reserved.

Contributions—Exclusive Publication.—Articles are accepted for publication on condition that they are contributed solely to this journal. California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

EDITORIALS

FRANK BENTON CARPENTER, 1858-1928

Twenty-six years ago, the Medical Society of the State of California, as the California Medical Association was then called, elected as president, Frank Benton Carpenter of San Francisco, a prominent physician and surgeon of that city, who was known not only for his high professional standing, but for his interest and service in organized medicine. Just as this issue of the journal was going to press, news came of the death of this colleague.

Doctor Carpenter had endeared himself to all who knew him, for with his well trained mind and hands were associated a generous heart, and a kindly and brave outlook on life. That so many of his colleagues with whom he had worked, thought and spoke of and to him as "Benny Carpenter," means much as an indicator of the place he held in the affections of his fellows.

With others of our guild who, in days gone by, were a very intimate part of our organization, he has now passed on. In the grief of parting, we are yet grateful that for so long a time he was so much with and of us. *Requiescat in pace.*

HENRY GREEN BRAINERD, 1852-1928

In the news column of last month's issue of CALIFORNIA AND WESTERN MEDICINE was a note on a "Testimonial Dinner to Dr. Henry G. Brainerd of Los Angeles," tendered by some two hundred colleagues on May 23, at the Los Angeles University Club. Mention was made of a portfolio which was presented to Doctor Brain-

erd with the following inscription: "On this, your seventy-sixth birthday, Dr. Brainerd, we want you to know what we think of you. . . . This dinner and these speeches are the tangible expression of our thought. . . . It is something within us—a spontaneous individual reaction toward your personality which comes from the heart of each of us. . . ."

\* \* \*

That was a brief two months ago. On the evening of July 22, death took this colleague, a graduate of Rush in 1878, and who since 1886 had been one of southern California's most active and beloved physicians. In all activities making for the perpetuation of high and broad standards of practice his coöperation and influence always was counted on by his colleagues. With his responsibilities came also many honors; among others, the presidency of the California Medical Association in 1923.

Our profession and all citizens with whom he contacted are the richer and better for his having been among us. Much more than that, it is not possible to say of any man.

PROPOSED INITIATIVE MEASURES

Following are copies of two proposed measures now in circulation: one relative to vaccination of public school children, and the other a so-called "reform of the present public health laws." Because of their importance, the full text of these proposed initiatives is here given.

\* \* \*

VACCINATION INITIATIVE

The People of the State of California do enact as follows:

Article IX of the Constitution of the State of California is hereby amended by adding to it a new section which shall be numbered Section 15, and shall read as follows:

ARTICLE IX

Section 15. Vaccination shall not be required as a condition for admission to or attendance in any public school, college, university or other public educational institution in this State receiving public funds.

\* \* \*

INITIATIVE MEASURE TO BE SUBMITTED DIRECTLY TO THE ELECTORS

HEALTH BOARDS AND NON-MEDICAL PRACTITIONERS IN PUBLIC HOSPITALS

The Attorney-General has summarized the proposed measure as follows:

Initiative. Add Section 27 to Article I of the Constitution. Declares Public Health Boards shall comprise not exceeding one medical and one drugless practitioner, one business man, and at least four sanitary engineers or men having practical sanitation experience. State Public Health Director, and City and County Health Commissioner, to be sanitary engineer, not healing system graduate. Hospitals or institutions, supported publicly

wholly or partially, to provide non-medical practitioner, when patient requests, together with hospital facilities and privileges accorded medical practitioners; patient to have physician or practitioner of such healing school he chooses.

#### REFORM IN PUBLIC HEALTH SERVICE

Providing (1) for a complete change in the personnel of Health Boards, to secure more sanitation and less medication in the care of public health; and (2) for a fairer representation on the staffs of publicly supported hospitals.

State of California }  
County of..... } ss.

*To the Honorable Frank C. Jordan, Secretary of State of the State of California:*

We, the undersigned, registered, qualified electors of the State of California, residents of ..... County, present to the Secretary of State this petition, and request that a proposed measure, as hereinafter set forth, be submitted to the people of the State of California, for their approval or rejection, at the next ensuing general election, or as provided by law. The proposed measure is as follows:

*The People of the State of California Do Enact As Follows:*

A new Section to be known as Section 27, Article I of the Constitution is hereby added to said Constitution, and to read as follows:

Section 1. The care of the public health in this state shall be defined and understood to mean the promotion of sanitary conditions; the creation of a clean, wholesome physical environment, including clean streets, good sewerage, efficient garbage disposal, a pure water supply, market and dairy inspection, scavenging and elimination of offensive nuisances, and the enforcement of proper, reasonable quarantine regulations.

Section 2. All health boards, state, county, and municipal, shall comprise not more than two doctors, one from a medical school and one from a drugless school of healing; one competent business man; and four or more sanitary engineers, qualified by technical knowledge and training to discharge the duties required within the meaning of this Act. In the event of an insufficient number of such trained engineers being available, it shall be the duty of those empowered by law under the statutes, charters or ordinances of state or municipalities, to appoint men of practical experience in sanitation, such as expert or master plumbers, etc., to care for the public health herein defined. The Public Health Director of the State Department of Health, as well as the Public Health Commissioner of city or county, shall be in every case a competent, experienced sanitary engineer who is not a graduate of any system or school of healing. The appointing power for public health officials shall remain the same as under the existing law, and their tenure of office and pecuniary remuneration shall be as heretofore, or as may hereafter be prescribed.

Section 3. Any citizen, resident or visitor confined in any hospital or institution supported

wholly or in part by public funds within the state of California or any of its political subdivisions, shall have a physician or practitioner of any school or healing he may choose; and the Board of Managers of said hospital or institution shall be required to provide a practitioner other than medical, for such patients as desire him, and in case such patient be a minor or person adjudged incompetent to act in his own behalf, desired by parent or guardian; to visit and administer treatment, with all the hospital facilities and privileges now accorded exclusively to medical practitioners.

Section 4. All violations of any of the provisions of this Act by any officer, employee, or other person in charge of any public institution of this state, or any of its political subdivisions, shall be punishable by a fine of not less than one hundred dollars (\$100.00), nor more than five hundred dollars (\$500.00); or by imprisonment not exceeding six months, or by both fine and imprisonment for every day of such violation.

Section 5. All laws heretofore enacted within the state of California, and all rules or regulations passed by any political subdivision of the state of California in conflict with this Act, are hereby repealed.

Section 6. This Act shall be in force from and after its passage and approval.

\* \* \*

An educational basis is seemingly an essential foundation for suffrage that is permitted to determine decisions on such vital problems as public health and sanitation. Democracy's much prized "freedom of thought" and "universal suffrage" make possible the passage of laws that may finally defeat the progress of scientific medicine and even the possibility of future investigation and progress.

The two measures are examples of proposed legislation that might well have required the signatures of basic science diplomats.

#### FALL MEMBERSHIP CAMPAIGNS—THEY ARE QUITE IN ORDER

In the report of the Los Angeles County Medical Association, which appears in this issue, is the presentation of an argument giving reasons why its members should endeavor to bring into affiliation with organized medicine every eligible practitioner of medicine in that county.

Attention is called to the report because the appeal may be taken to heart by other county units, and because the advantages of county society membership, as therein portrayed, apply with equal or greater force in other portions of the state.

\* \* \*

California has the honor of being the fourth largest state unit of the American Medical Association. It loses this front rank, however, when the number of member and non-member licensed practitioners in California is contrasted. It takes a lesser rating also, in the percentage of members who, as Fellows of the A. M. A., receive the



journal of the national association. The *Journal A. M. A.* of March 3, 1928, credited the California Medical Association with a total of 4,536 members. The statistics also brought out that there were a total of 8,854 licensed physicians in California, a difference which shows a non-membership total far above what it should be. The above and other figures in the report alluded to, provoke suggestive thought to all who believe in an organized medical profession.

\* \* \*

Members of component county societies should keep constantly in mind the desirability of bringing every ethical practitioner of proper professional qualifications into affiliation with the component society of the county in which that eligible practitioner resides; and also, that every county society, which fails to bring such eligible physicians into affiliation with organized medicine, to that extent at least, is lacking in fullest possible efficiency.

The obligation of bringing such eligible practitioners into the fold of organized medicine should not be passed over as a sole responsibility of the officers of the county unit, for such is not the case. It is an individual and a very personal responsibility which applies to each of us. It is true that the county society officers should take the initiative, but each of us should be militant and alert in this expression of society activity, and lose no opportunity to make our respective county representation approach more and more the one hundred per cent membership standard. The subject has been discussed in some detail in past issues of *CALIFORNIA AND WESTERN MEDICINE* (May, 1927, p. 665, and January, 1928, p. 81), and officers of county units who are in doubt on how to proceed are requested to read the suggestions therein made.

\* \* \*

With concerted effort a very considerable addition to our membership could accrue in these remaining months of the present 1928 year. At any rate, even though many of these eligible physicians do not join now, they could be approached and their applications considered and voted on, so that they might be brought into active membership with the beginning of the new year. It would be interesting and very profitable to all concerned if a friendly contest could be inaugurated during the next few months to determine what county unit in California would show the largest percentage of membership increase. If we all do our respective parts, the 1929 San Diego annual session will be the recipient of progress reports in organization, that will be gratifying to every physician who is interested in the welfare of his profession.

#### C. M. A. CONSTITUTION AND BY-LAWS REVISION

Two years ago several amendments were proposed to the present constitution and by-laws of the California Medical Association.

In a consideration of the same it was decided that it might be well to have a complete revision

of the entire code undertaken, and to that end a committee of nine was appointed.

This committee presented its final report at the last annual session at Sacramento, and requested that it be discharged from its labors.

The House of Delegates having decided not to consider the revision at the Sacramento session, it was voted to print this committee draft and also a complete revision draft prepared by the general counsel of the Association in *CALIFORNIA AND WESTERN MEDICINE*. These two drafts are accordingly presented in this issue of the official journal.

A special committee, consisting of Doctors Percy Magan of Los Angeles, George Reinle of Oakland, and Alexander Keenan of San Francisco, was appointed by President Kiger and President-elect Gibbons, to make a study of these two drafts and to bring in a report thereon.

The attention of the members of the component county societies of the California Medical Association is called to these drafts which are now printed, and all members are urged to read and study the same. Suggestions are invited and may be sent to any member of the committee or to the Association.

In addition to the amendments in the proposed revisions which are now printed, other proposed amendments were submitted at the Sacramento session. Members who wish to make comparisons with the constitution and by-laws by which the California Medical Association is now governed, will find the same with other proposed amendments which were reintroduced at the Sacramento session in the August, 1927, issue of *CALIFORNIA AND WESTERN MEDICINE*, page 244.

#### THE ECONOMICS OF OPHTHALMIC PRACTICE—SOME MODERN DAY DRIFTS

Sight, of all the special senses, has a paramount place in the development and fate of mankind. Its conservation has merited all the splendid work of the host of medical men who, in the past, have given of their best to make the specialty of ophthalmology an outstanding science. That the future of the specialty will be safe in the hands of present day and future ophthalmologists may be taken for granted, for with both broader and more specialized training, high standard scientific progress in this field of medical endeavor should continue to be made.

\* \* \*

Nevertheless, as in a number of other specialties of medical practice, the economic outlook for the newer devotees or disciples of ophthalmologic practice may be said to be not overly reassuring. By this statement is meant that, in comparison with the greater cost of modern training for efficient service in this specialty, and the longer time period of preliminary preparation and study required nowadays, the financial rewards which will come to the average man in this specialty, in return for all his super expenditure of funds and study, are quite unalluring.

\* \* \*

Why should such be the case? Why should not the broader preliminary education, the more exact-

ing technical training, and all the extra money and study effort comprehended therein, be repaid in proper form to the newer entrants of today and tomorrow, who in not far distant days will bear the brunt of maintaining its high standards? Why should this specialty, in contradistinction to a goodly number of others, such as gynecology or pediatrics, be so relatively uninviting to the recent recipient of the M. D. degree, who is measuring the comparative values of different forms of specialized practice? Why should there seemingly have been a let-down in recent years in the attractiveness of this specialty, and to what extent will undesirable causative factors be active in the future?

\* \* \*

To the writer, it seems that the major of what might be called debauching influences to high standard scientific work and reward in this specialty, come back to the fact that in one of its major expressions, namely, in the correction of refractive errors through proper lenses, there is brought into operation in the ophthalmologic specialty, a contact not only with professional services, but with merchandise. It is the merchandise factor that has introduced the inharmonious element, and it is this sale of spectacles and eyeglasses that in recent years has, and in the future will continue to play havoc to a considerable extent with the financial emoluments that should be the reward of well equipped medical men who enter the specialty.

\* \* \*

It is not possible to here trace the development of the refraction work of the specialty, or of the secondary craftsman and merchandise output that has become so important a part of what might be called the refraction division of ophthalmologic practice. Suffice it to say that the work involved in the determination of the character of a refractive error, with a prescription for its correction, and a check on the ground lenses, were somewhat the limit of what the older ophthalmologists construed to be their obligations. The grinding of the lenses, and the making of the frame mountings was left to grinders or opticians, either alone or in conjunction with jewelers. In this way, at a time when the number of medical eye specialists were somewhat few in number, a goodly number of jewelers began to take up optician and optical work as a side line. How recent this all was, may be gleaned from a current issue of an optometric publication, in which was given a report of the annual convention of a state optometric association in the Middle West. The excerpt is as follows:

"To the reporter of the *Weekly*, the convention was of particular interest and significance, for when about fourteen years ago he was present in a like capacity to write an account of a joint meeting held by optometrists and jewelers, he expressed himself forcibly to the effect that so long as optometrists met with jewelers, he would never again set foot on the soil of such a state."

\* \* \*

Another interesting item in this same optometric publication is an announcement stating that

Bausch and Lomb, so long known to medical men for their microscopes and other high grade optical instruments, were offering prizes of one hundred dollars "for the best letters of suggestion on 'How to Sell the Extra Pair.'" Needless to say, if every one who wore glasses would provide himself with an extra pair, considerable benefit would accrue to the profession (optometric) at large."

\* \* \*

And from the Department of Public Information in the same publication, this item: "Five million school children in this country will not be ready for their work when the school bell rings, unless we educate parents and children to their visual needs, and what they lack is most vital in the scheme of their progress—comfortable vision. . . . What about you, yourself, fellow optometrist? Does not the greater blame lie with you if you do not use every avenue of publicity open to you to bring to the attention of parents, teachers, and every person and institution interested or responsible for the welfare of children, the vital importance of optometric eye care. . . . Forty per cent of the school children of your community will need eye care when vacation is over, and the time comes for them to go back to school. Someone is going to do this work. Whether these children will get the services of an optometrist, and whether that optometrist will be you, depends entirely on you, yourself. Whether you are going to get your share of this work to which you are justly entitled depends on your planning. . . . Optometric school surveys should be made, most assuredly, after school has opened, but the way should be paved before school starts."

Then follow suggestions on how best to do all this, with literature to be sent to school and other clubs.

\* \* \*

A year or so ago, a group of well trained opticians met in the East and formed "The Guild of Dispensing Opticians," with the object of making and selling spectacles on physicians' prescriptions only. The movement received considerable favorable comment in the *American Journal of Ophthalmology*. Not so, however, from their colleague optometrists, as witness the following paragraph from an optometric journal which printed the address of a recently retiring president of the California State Association of Optometrists, who on this subject stated: "We would further suggest that a resolution be brought in deprecating the published declaration of the Guild of Dispensing Opticians of America, and recommending that any members of this Guild who are holding an optometric license in any state, have their license revoked for conduct unbecoming an optometrist, and that copies of this resolution be sent to the secretary of every state board of optometry in the United States."

\* \* \*

Official reports of state boards of licensure are usually dignified presentations of fact. A booklet from the Oregon state printing department contains the law relating to the practice of optometry and gives a list of the registered optometrists of



that state. But it also contains a deliciously interesting and naïve statement, entitled "Foreword—Optometry's Needs," by the secretary of the Oregon State Board of Examiners in Optometry, and from which the following is quoted: "Then let us (optometrists) join, work for, and contribute to anything that will aid us to accomplish this end. Let us, therefore, as our sister professions (medicine, dentistry, law) have done, unite that we may place ourselves on the same high plane that they enjoy, and enjoy even a greater privilege of doing good for humanity—giving and preserving better sight—a privilege that does not fall within the scope of any other profession—for without vision the other professions would be greatly handicapped in their work. . . . Optometry will, when every man works for the good of the profession, be the leader of the learned professions. So let us hasten the day by uniting our efforts, and working and building as one.

Yours for a united Optometry,  
 -----, Secretary."

\* \* \*

It is interesting to note that, owing perhaps to either a lack of ethics or a preponderance of merchandising or advertising publicity, that the sale of glasses has gotten beyond the domain of individual optometrists, and in the larger cities has become a presumably well established counter of many large department stores, even to the point of special rate reductions being featured for glasses on bargain days. And latterly, advertisements are seen, announcing that glasses will be prescribed and may be bought on time!

Also, at this year's meeting of the California State Association of Optometrists, the president recommended: "We would suggest to the resolutions committee that the attention of our State Board be called to the clause placed in the Ohio state optometry law, making it a misdemeanor to advertise prices of lenses, frames or mountings. The Oklahoma convention recently passed a resolution covering this matter."

Where all this business rivalry and publicity propaganda will end is difficult to say.

The dubious outlook in all this depreciation of professional and merchandise standards is partly dependent upon the fact that there are three or four grades of lens material, shading off from well inspected, high-grade lens material to what in California fruit establishments would be called culls. It is by no means an easy matter to always rapidly detect the deficiencies of such second rate material, in either lenses or frames, so that people purchasing glasses must take, with a grain of salt, announcements of very low prices for high-grade merchandise and workmanship, unless, made by firms of well established reputation.

Optometry, however, has suffered somewhat from an oversupply of disciples and, in spite of the advertising propaganda and commercial methods, a goodly percentage are presumably not prospering financially. If reports be true, a very considerable number have taken courses in chiropractic and other cultist schools, so that as prac-

tioners of the healing art, they may get into the field of practice, and thus treat diseases and injuries of the eyes, as well as refract. If this movement becomes at all general, a vista of new and deleterious activities will spread itself before us in the near future.

\* \* \*

In the face of all the above, and of other factors which might be cited, it is reassuring to read some editorial comments in the *American Journal of Ophthalmology*, by that dean and leader of American ophthalmologists, Edward Jackson, M. D., of Denver, Colorado, who expresses himself thus: "It was a happy suggestion that these opticians (Guild of Dispensing Opticians) adopted, to advise the public to consult 'eye physicians.' The word 'physician' has a definite meaning in the minds of most people. It is associated with health matters, a medical education and membership in a real profession, not a profession created by legal enactment to meet the advertising needs of up-to-date business men. The optometrist could not confuse the public as to the meaning of physician. The department stores saw that advertising an "eye physician" to give advice to their customers was coming unpleasantly near to association with the advertising medical quacks. It could not be used to confuse the public to the advertiser's advantage. An eye physician, a real eye physician, who had special knowledge of the health needs of the eye, was a person the advertisers had no use for.

"The term 'eye physician' may well be a subject for special thought on the part of every physician wishing to prepare for and establish himself in ophthalmic practice. He may desire to be so designated, and may be proud to deserve the title. It suggests the broad medical and health responsibilities that rest upon every physician. It should divert the emphasis that has come to be placed on the importance of the operative surgery of the eye, to the wider, more important aspects of eye health; and to the close vital relations between eye fatigue and nerve fatigue, between eye nutrition and general nutrition, between eye health and general health."

\* \* \*

The partial analysis of detrimental factors in one of the important specialties in medical practice, herewith presented, suggests the desirability of members of every specialty being alert to extraneous and deleterious forces, which in their incipency, seem so trivial as to be unworthy of notice; but which, if disregarded, take on a mushroom growth and ramifications such as have been here outlined, and which today and in the future will have an important influence on the interests of American ophthalmic practice.

All these things are part and parcel of medical economics. Sections of our county and state societies might well set aside an hour at least once a year, to their own good advantage, to discuss those economic problems and trends of the today and tomorrow, that are apt to have a bearing on the scientific and economic aspects of their respective specialties.

# MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

## Ophthalmology

**Sterilization of Ophthalmic Instruments.**—The delicate construction of ophthalmic instruments, especially those with cutting edges, renders it essential that their sterilization be done more carefully than that of general surgical instruments. Recently there has been considerable discussion as to the method of sterilization which is most convenient and does the least damage. Finnoff<sup>1</sup> describes a method of dry sterilization which was called to his attention in the Morax Clinic in Paris. The instruments are fixed in holders which are placed in corked test tubes or metal boxes with tight covers. These containers are wrapped in paper and are put in an electric sterilizer which keeps the temperature at 160 degrees C. for one-half hour. When used, the paper can be removed and the surgeon can remove the instruments from the sterile containers. Experimentally Finnoff found that this temperature killed all spores but would not injure even finely tempered watch springs.

The usual present method of sterilization of cataract knives and scissors is by carbolic acid followed by alcohol. Instruments will rust in either of these solutions. More recently Hayward Post<sup>2</sup> of St. Louis has described a solution which will not rust or tarnish the finest blades even after several days' immersion. Dr. A. E. Ewing had originally devised the solution which consists of 95 per cent alcohol, 6 ounces; commercial chloroform, 6 ounces; Liquor cresolis compositus, 1 dram; and liquid albolene, 6 drams. This solution killed staphylococcus albus and aureus, streptococcus diphtheria and typhoid bacilli in one minute or less. No trials were made with spores. When removed from the solution, a slight film of oil remains on the instruments which protects and maintains the edge.

The writer has had no experience with the dry sterilization of instruments, but has used the solution as described by Doctor Post with great satisfaction. One keratome has been kept in good condition for as many as six operations without resharpening. This solution should also be of value to the general surgeon and practitioner for sterilization of small knives and scissors. It must be kept in covered containers to prevent evaporation.

M. F. WEYMANN, Los Angeles.

## REFERENCES

1. Finnoff, William C.: *Am. J. Ophth.*, August, 1927, Vol. 10, p. 598.
2. Post, Hayward: *Am. J. Ophth.*, January, 1928, Vol. 11, p. 18.

## Proctology

**Chronic Ulcerative Colitis.**—In reference to this disease, Hurst says: "No diagnosis is made more frequently and with less justification."<sup>1</sup> Bargen<sup>2</sup> claims that the condition is due to a specific Gram-positive, nonmannite fermenting diplococcus, and that favorable results in treatment have been obtained from a vaccine or filtrate of this organism. This he obtains from the ulcers themselves through the sigmoidoscope and combines it with irrigations of the bowel with gentian violet. Others have not had the same success and still consider the cause of the ulcerations undetermined.

The diagnosis of ulcerative colitis is made on the presence of diarrhea with blood and mucus in the stools caused by no specific organism apart from the generally unconfirmed diplococcus of Bargen. Hurst<sup>3</sup> makes a claim which is confirmed by Buie<sup>4</sup> that "ulcerative colitis can be recognized at the first glance (by the sigmoidoscope), but the appearance it presents is indistinguishable from bacillary dysentery" and on the last sentence bases the main part of his treatment. This consists of intravenous injections of large doses of polyvalent antidysenteric serum. He gives 40, 60, 80, and 100 cc. on successive days and then 100 cc. for a few additional days. In addition, he finds injections of the colon with .2 to .4 per cent tannic acid rather better than other astringents or antiseptics.

The appearance of the rectum and sigmoid colon through the sigmoidoscope differentiates the disease under discussion from amebic dysentery even before the stool has been examined for ova or their cysts. In amebic infection the ulcers are discrete, deep and not so small as in ulcerative colitis, which in early stages are undermined, shallow, and have a chronically inflamed red line along the edge. They are found in great numbers and are small, being only one to a few millimeters in diameter. They may always be found in the upper rectum if the colon above is infected, and they probably start below. On the other hand, the amebic ulcers are deep, occur on the prominent folds, may be three to eight millimeters in diameter and are umbilicated and covered usually by a white slough. One might say that there is an exuberant and active ulceration in the amebic types and a chronic indolent one in the nonspecific disease.

These appearances are early ones. The progress of an untreated secondarily infected amebic



dysentery will make later on its gross pathology similar to that of a late chronic ulcerative colitis. Then there is massive denudation of epithelium progressing deeply through the wall of the bowel.

Surgery is definitely indicated for chronic ulcerative colitis early in every case where the condition is not easily amenable to medical treatment and ileostomy seems to be the best form of surgical procedure.

M. S. WOOLF, San Francisco.

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1. Hurst, A.: *Lancet*, 1926, ii, pp. 1151-1154.
2. Barga, J. A.: *Minnesota Med.*, 10:689-694, November, 1927.
3. Hurst: *Loc. cit.*
4. Buie, L. A.: *Surg. Gynec. Obst.*, xlv, pp. 213-215, February, 1928.

#### Physical Therapeutics

**Ultra-Violet Radiation in the Treatment of Pertussis.**—Many remedies have been used in the treatment of pertussis, but as yet there are none that can be positively relied upon to be of value in all cases. During the past few years, ultra-violet radiation has been used in the treatment of whooping-cough, with enough success to warrant its continued use.

In the *Journal de Radiologie et d'Electrologie*, Bru Camille gave the results in treating children of different ages, and in various conditions, by this method: 80 per cent being cured, 10 per cent being improved, and 10 per cent showing no perceptible benefit.

Bru Camille's technique consisted of two minutes' radiation at 27 inches to the front and back the first day; this dosage being increased two minutes every second day. Erythema usually occurred after the third treatment, and was accompanied by general improvement, with lessening of fatigue and with a definite decrease in the number and violence of the coughing and vomiting attacks.

The treatment outlined above, with some modifications in application, has been used for over two years in the Boyle Avenue Dispensary at Los Angeles with good results, but with a smaller percentage of cures than above quoted.

A study of a series of patients showed that approximately 50 per cent showed marked improvement; 40 per cent some relief; while the remaining 10 per cent apparently received no benefit from the treatment. The patients in this series were given ten minutes of deep therapy lamp radiation to the front and back, preceding the ultra-violet exposure. The purpose of this was to induce a peripheral hyperemia, and thus enhance ultra-violet absorption.

The more severe cases in the series received daily treatment at the outset, but after improvement was noticeable, the patients were treated on alternate days.

Blondes were started with 30 seconds of ultra-violet to front and back at 15 inches, and increased 30 seconds if given daily, or 45 seconds when less frequently given. Brunettes were given

45 seconds for the first exposure, and then increased at the same rate as for the blondes.

Several of the children who had been vomiting persistently did not vomit after the first treatment. Unfortunately this represented a small percentage, but the general improvement in the patients who were treated was most encouraging.

A. A. STEELE, Beverly Hills.

#### Urology

**The Clinical Significance of Pyelovenous Backflow.**—Considerable interest has been manifested in the phenomenon of pyelovenous backflow as evidenced by the number of publications that have appeared during the last year:

Lee-Brown: *The Phenomenon of Pyelovenous Backflow*, *J. Urol.*, 17:105, 1927.

Lee-Brown and Laidley: *Pyelovenous Backflow*, *J. A. M. A.*, 89:2094-98, 1927.

Fuchs, Felix: *Untersuchungen über die innere Topographie der Niere*, *Ztschr. f. Urol. Chir.*, 18: 164-80, 1925. *Über den pyelovenösen Reflux der menschlichen Niere*, *Ztschr. f. Urol. Chir.*, xxii, Heft 5/6, 435-66, 1927. *Ibid.*, II. *Mitteilung*, xxiii, Heft 3/4, 210-22, 1927.

Gile, Harold H.: *Observations on Injections of the Renal Pelvis, with Special Reference to the Question of Pyelovenous Backflow*, *J. Urol.*, 18:621-35, 1927.

Of these, the studies of Felix Fuchs of Vienna are particularly interesting as he has emphasized the practical significance of a pyelovenous backflow in many everyday clinical conditions. Of these might be mentioned particularly its relation to the occurrence of renal hemorrhage and to the acute exacerbations of renal sepsis after temporary or partial ureteral obstruction. In addition to these two clinical conditions, pyelovenous backflow has been variously regarded as of significance in reference to the mechanism of hydronephrosis. Its practical significance lies in offering an explanation of many defects that are seen in otherwise normal pyelograms and of the accidents and sudden deaths that have been known to follow pyelography. Certain studies of Fuchs further emphasize the practical significance with respect to air embolism, particularly following contrast cystography or following a common practice of filling the bladder with air at the time of operation in performing cystotomy. Fuchs has shown that air gains as ready access to the renal veins upon injection by way of the ureter as fluid menstruum. All these various experimental studies, while they have not definitely established the exact route and mechanism of pyelovenous backflow, have established that this is the commonest and most important route in general following ureteral back pressure. In addition there is in the human kidney particularly a slight or partial backflow up the collecting tubules, occasionally an extravasation along the larger vessels beneath the cortex giving subcapsular extravasations.

FRANK HINMAN, San Francisco.

### Blood Glandular

**Relation of Muscle Hemoglobin to Blood Hemoglobin.**—The question of the identity or nonidentity of muscle hemoglobin and blood hemoglobin has been the subject of physiological speculation and experimentation for over a century, and is possibly a question of considerable clinical significance.

A hundred years ago, it was assumed that there was a free interchange of coloring matter between the muscle fibers and the erythrocytes, that is, that the hemoglobins in the two structures were chemically identical. About fifty years ago, however, it was found that perfusion did not wash out the hemoglobin from muscle, which led to the opposite conclusion, that is, that the two hemoglobins were chemically distinct. The term pseudo-hemoglobin was, therefore, introduced. A few decades later, however, modern biochemical methods again reversed this conclusion, the accumulated chemical data showing an apparent identity. Spectroscopic records, for example, were almost indistinguishable.

A third reversal of conclusion has just come from the application of serological methods. Hektoen and his coworkers<sup>1</sup> have immunized rabbits against the two hemoglobins (dog) and have obtained precipitating sera with which the two hemoglobins can be sharply differentiated.

W. H. MANWARING, Stanford University.

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### Dermatology

**The Relationship Between Herpes Zoster and Varicella.**—There has recently been considerable discussion pro and con, in regard to the alleged relationship between the etiologic agents of herpes zoster and varicella. During the last ten years many instances have been reported of varicella having been contracted from patients suffering with herpes zoster and vice versa. These reports have become so common that one might be tempted to accept a relationship between the two diseases. However, this "*post hoc, ergo propter hoc*" type of reasoning should not be accepted in this instance because of the common occurrence of the two diseases. The alleged relationship may be due to coincidence rather than to any similarity between the causative factors.

The most striking cases recently reported are those by the Shelmires.<sup>1</sup> A father, age fifty-two, developed a severe typical gangrenous herpes zoster of the right side of the face and tongue. Nine days later he developed a generalized eruption which was characteristic of varicella. Seventeen days following the onset of the herpes zoster, his daughter, age twenty-seven, developed clinically typical varicella. She had never had chicken-

pox as a child nor had she been in contact with children or varicella recently.

Certain laboratory findings tend to indicate a relationship between zoster and varicella. Acidophylic intranuclear inclusion bodies are found in the lesions in both diseases.<sup>2</sup> Positive cross-complement fixation tests speak in favor of some relationship between the two diseases.<sup>3</sup> One experimenter claims to have succeeded in producing varicella in seventeen out of twenty-eight children inoculated intradermally with the fluid from the vesicles of zoster. Children who had had varicella proved immune to the inoculated zoster virus, while those who developed a varicellous eruption therefrom were later found to be immune to chickenpox.<sup>4</sup>

While the above clinical and laboratory findings are by no means conclusive, they are sufficiently suggestive to warrant the statement that the theory of a relationship between varicella and herpes zoster is worthy of serious consideration.

H. J. TEMPLETON, Oakland.

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3. Netter, A., and Urbain, A.: *The Relation Between Herpes Zoster and Varicella*, *Compt. rend. Soc. de Biol.*, 94:98, January, 1926.
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**Success With Mongoloid Idiots Reported.**—Mongoloid idiots—those baffling cases of defective children that look like flat-faced Oriental dolls—may be reclaimed from their smiling, contented state of idiocy and in some cases they may even reach practically normal intelligence. This was the encouraging report made by Dr. Walter Timme, of New York, before the American Association for the Study of the Feeble-minded.

The cause of Mongolism, and how to treat it, are still uncertain, though it is generally recognized as a gland disorder. Doctor Timme described his theory, which traces many of the symptoms of Mongolism to faulty development or lack of development of the fore section of the pituitary gland.

Working on this theory, Doctor Timme stated that he has been feeding Mongoloid patients pituitary substance, both of the whole gland and particularly of the fore lobe of the gland. Hypodermic injections of the gland solution have also been given, and in addition the patients have been given the usual thyroid treatment.

"As a result of ten years of this work, I have brought many of my Mongoloid patients to much higher levels than we have heretofore been able to do," he said.

Some of these children, who had started in life with the prospect of remaining idiots, unable to dress themselves, talk properly, or even eat like normal children, learned to do arithmetic up to multiplication by three or more figures and long division. They also learned to write letters and do oral arithmetic, which is remarkable achievement for these cases.

One of the patients, described by Doctor Timme, has attained an intelligence quotient of 90, which brings this child up to average intelligence.

Not all of the children treated have attained this degree of improvement, but Doctor Timme declared that "we have with these means accomplished more than by any previously known treatment, so far as I am aware."—*Bull. Wayne County Medical Society*.



# STATE MEDICAL ASSOCIATIONS

## CALIFORNIA MEDICAL ASSOCIATION

WILLIAM H. KIGER.....President  
MORTON R. GIBBONS.....President-Elect  
EDWARD M. PALLETTE.....Vice-President  
EMMA W. POPE.....Secretary

### PROPOSED REVISION OF CONSTITUTION AND BY-LAWS OF THE CALIFORNIA MEDICAL ASSOCIATION

#### Draft I—Committee Report on Revision

The following draft was submitted on May 5, 1927, at the Fifty-Seventh Annual Session, Sacramento, by the special committee on revision:

GEORGE H. KRESS, *General Chairman.*  
GEORGE REINLE, *Sub-Chairman, Northern Section.*  
W. T. McARTHUR, *Sub-Chairman, Southern Section.*  
CHARLES L. CURTISS, *Sub-Chairman General Section.*

NOTE: The word item and a number is inserted before each section, for convenience of reference. These item notations are not a part of this Constitution and By-Laws.

\* \* \*

### CONSTITUTION

#### ARTICLE I.—TITLE AND DEFINITION

(Item 1.)

##### Section 1.—Title

The name and title of this organization is the California Medical Association; it is a fedcracy of its component county societies.

\* \* \*

#### ARTICLE II.—PURPOSES AND GENERAL ORGANIZATION

(Item 2.)

##### Section 1.—Purposes

The purposes of this Association are to promote the science and art of medicine, the protection of public health, and the betterment of the medicinal profession; to promote similar interests of its component county societies; and to unite with similar organizations in other states and territories of the United States to form the American Medical Association.

(Item 3.)

##### Section 2.—State Organization

This Association, as a state unit of the American Medical Association, and as the state expression of the component county medical societies of California, shall have three major divisions: one, the Association as a whole, as when it meets in general session; two, the Scientific Assembly and its subordinate or related bodies, and, three, the House of Delegates and its subordinate or related bodies.

These shall each function, as otherwise provided herein.

\* \* \*

#### ARTICLE III.—COMPONENT SOCIETIES

(Item 4.)

##### Section 1.—Component Societies to Be Chartered

Component Societies shall consist of those county medical societies which hold charters from the Association.

(Item 5.)

##### Section 2.—Names of County Societies, and Geographical Scope

The terms county medical society and component county medical society or constituent county medical society shall be deemed to include all county medical societies in affiliation with this Association, or

which may hereafter be organized and chartered by authority of the House of Delegates of this Association. Only one county society can be chartered for any one county.

(Item 6.)

##### Section 3.—County Society Including More Than One County

When in the judgment of the proper authorities of this Association it is deemed to be to the best interests of this Association, a charter may be granted to a component society comprising two or more counties.

\* \* \*

#### ARTICLE IV.—MEMBERSHIP

(Item 7.)

##### Section 1.—Kinds of Members

The members of the Association shall consist of the following:

###### (a) Active Members

**Qualifications of Active Members.**—Active members shall comprise all active members of all the component societies. No person shall be eligible for election to active membership in a component society unless he shall hold the degree of doctor of medicine issued to him by an institution of learning accredited at the time of conferring such degree by the American Medical Association or the Association of American Medical Colleges. He must also hold an unrevoked license to practice medicine and surgery in the State of California.

**Rights of Active Members.**—An active member shall have the right of suffrage and all other rights and privileges of the Association.

###### (b) Associate Members

**Associate Members; How Elected.**—Associate members shall be elected by the Council upon the recommendation of the component society of the county in which the associate member resides, from those doctors of medicine engaged in teaching or research work, or holding positions in federal services or otherwise, who are not licensed to practice medicine and surgery in the State of California and hence are ineligible to active membership.

**Obligations and Rights of Associate Members.**—These members shall have all the rights and privileges of active members except the right to vote or hold office. The dues of associate members shall be one-half of the dues of active members; and their dues to their respective component societies (when such associate members are admitted to membership therein) shall be fixed by such component societies.

###### (c) Retired Members

**Retired Members; How Elected.**—Retired members of the California Medical Association shall be elected by the Council on the recommendation of the component societies of the counties of which the retired members are members, from those active members who cease the practice of medicine for any reason, and who shall have been active members of the Association for ten years or more prior thereto.

**Obligations and Rights of Retired Members.**—Retired members shall pay such dues as from time to time the Council shall fix.

Retired members shall be entitled to receive the monthly publication of the Association at such rate as the Council from time to time may determine.

Retired members shall not have the right to vote or to hold office in this Association.

###### (d) Honorary Members

**Qualifications.**—The House of Delegates on recommendation by the Council may elect as honorary

members any persons distinguished for their services or attainments as doctors of medicine or in the field of public health, or for research or other scientific work contributing to medicine.

**Obligations and Rights of Honorary Members.**—Honorary members shall not pay dues, and shall not be eligible to office.

\* \* \*

#### ARTICLE V.—HOUSE OF DELEGATES

(Item 8.)

##### Section 1.—Composition of House of Delegates

The House of Delegates shall consist of:

(1) Delegates elected by the component county societies; and

(2) The officers of the Association enumerated in Section 1 of Article IX of this Constitution. (These latter shall be ex-officio members of the House of Delegates, with all the rights of delegates.)

(Item 9.)

##### Section 2.—Legislative Functions of House of Delegates

The House of Delegates shall be the legislative body of the Association.

##### Election of Officers by the House of Delegates

It shall at the regular annual meetings thereof elect the President-Elect, the Speaker and the Vice-Speaker of the House of Delegates.

In accordance with the Constitution and By-Laws of the American Medical Association it shall elect the Delegates of the Association to the House of Delegates of the American Medical Association.

(Item 10.)

##### Section 3.—Issuance and Revocation of Charters

It shall issue component society charters to county medical societies which it deems and finds eligible therefor, and may, after notice to any competent society and due and proper hearing, revoke any such charter for cause.

(Item 11.)

##### Section 4.—Sessions Open to Members

All sessions of the House of Delegates, other than executive sessions thereof, shall be open to all members of the Association.

(Item 12.)

##### Section 5.—Formation of Councilor Districts

From time to time, but at least once in every ten years, upon recommendation of the Council or on its own initiative, the House of Delegates shall form and group or re-group the component societies into the stipulated number of Councilor Districts.

(Item 13.)

##### Section 6.—Division of Scientific Work

The House of Delegates, upon recommendation from the Council or on its own initiative, shall provide for the division of the scientific work of this Association into appropriate sections.

(Item 14.)

##### Section 7.—Maximum Number of Councilors at Large From One District

The House of Delegates shall not elect more than two councilors at large from any one councilor district.

(Item 15.)

##### Section 8.—Other Duties

The House of Delegates shall perform also such other duties as are specified in this Constitution and By-Laws.

(Item 16.)

##### Section 9.—Numbers of Delegates and Alternates

One alternate delegate eligible to service if any delegate of the delegation of a component county

society is disqualified or fails to attend the meeting, shall be elected for each delegate.

##### Terms of Delegates and Alternates: One Half Elected Each Year

Delegates and alternates shall be elected by the several component county societies respectively for a term of two years; one-half of the delegates and alternates representing each county society as near as may be shall be elected each year.

(Item 17.)

##### Section 10.—Qualifications of Delegates

Every delegate and alternate must be in good standing as an active member of the Association and of his component society, and have been such at least two years immediately preceding his election.

(Item 18.)

##### Section 11.—Reseating of Delegate in Lieu of Alternate

When an alternate is seated, the Secretary shall record him as having been seated for a specific delegate who is absent. If the delegate so absent later appears, he can be seated in lieu of the alternate, if the alternate announces the presence of the delegate in whose place he is serving, and the House of Delegates sanctions the retirement of the alternate as an acting delegate.

(Item 19.)

##### Section 12.—Seating in Lieu of an Absent Delegate and His Alternate

If a delegate be absent, and no alternate be present to take his seat, then, with the sanction of the House of Delegates, some other member of the respective county unit may be seated to fill such vacancy.

(Item 20.)

##### Section 13.—Basis of Representation of Component Societies

Each component society shall be entitled to be represented by one delegate and one corresponding alternate for every fifty members thereof, and also by one delegate and one corresponding alternate for each major fraction of fifty members thereof as of the first day of November of the year preceding a current annual session.

Every component county society even though it have less than the major fraction of fifty members, shall be represented by at least one delegate, with the usual provision for an alternate.

(Item 21.)

##### Section 14.—Councilor District Societies

The House of Delegates, upon recommendation of the Council or on its own initiative, may provide for the organization of such Councilor District Societies as will promote the best interests of the profession, such Councilor District Societies to be composed exclusively of members of component county societies.

\* \* \*

#### ARTICLE VI.—COUNCIL

(Item 22.)

##### Section 1.—The Council

The Council shall consist of the Councilors, and ex-officio: the President, the President-Elect, the Retiring President, and the Speaker of the House of Delegates, each with all the rights of a Councilor.

The Secretary-Treasurer and the Editor shall also be ex-officio members of the Council, as otherwise provided.

##### Election

The nine district councilors shall be elected as follows: At some time prior to the first meeting of the House of Delegates, the delegates of each councilor district for which a councilorship is about to become



vacant, shall meet, organize and in due form elect one or more members of the said councilor district, as a nominee or nominees for the said vacancy in such councilor district. Such nomination or nominations shall be submitted in writing, signed by at least two delegates who were present at such meeting, and shall be given to the Secretary-Treasurer, by him to be transmitted to the House of Delegates. The House of Delegates may make additional nominations, and in the event that the delegates from a councilor district fail to submit a nomination or nominations, shall on its own account proceed to make nominations for each district councilor vacancy; and a vote shall then be taken by the House of Delegates to determine who shall be elected for the vacant councilorship.

All councilors-at-large shall be elected one by one from nominations made on the floor of the House of Delegates.

(Item 23.)

#### Section 2.—Organization

At the first meeting of the Council held after the adjournment of the last meeting of the House of Delegates at the regular annual session of the Association, the Council shall organize by the election of one of the Councilors as Chairman of the Council who shall serve as such up to the first Council meeting held after the adjournment of the last meeting of the House of Delegates of the next succeeding regular annual session of the Association; and also a Vice-Chairman who shall hold office in similar term, and who, in the absence of the Chairman, shall perform the duties of the Chairman.

The Secretary-Treasurer of the Association shall serve as the Secretary of the Council.

(Item 24.)

#### Section 3.—Quorum

Nine councilors shall constitute a quorum.

(Item 25.)

#### Section 4.—Acts as Board of Trustees

The Council shall be the Board of Trustees of this Association, in so far as in that function it shall not conflict with the prior rights of the corporate body of this Association, in case it any time should be incorporated, after one of the methods permitted by the State of California.

(Item 26.)

#### Section 5.—General Powers and Functions

The Council shall have the full authority and power of the House of Delegates between annual sessions, unless the House of Delegates shall be called into session as provided in the Constitution and By-Laws.

Subject only to provisions of this Constitution and By-Laws and all resolutions and enactments of the House of Delegates, the Council shall be vested with full and complete power and authority to manage, control, use, invest, reinvest, lease, make contracts in respect of, and concerning, convey, give, grant, transfer or otherwise dispose of all property and assets of whatever kind or nature owned by the Association and shall also be vested with full and complete power and authority to do and perform all acts and to transact all business for and on behalf of the Association and to manage and conduct all the work and activities of the Association in carrying out the purposes thereof.

**Budget Report.**—Through its chairman, as otherwise provided, it shall submit a budget for the ensuing year to the House of Delegates.

**Annual Report.**—It shall make a report of its proceedings to the House of Delegates at the first meeting of the House at each annual session of the Association.

(Item 27.)

#### Section 6.—Auditing Committee

The chairman of the Council, subject to its approval, shall appoint an auditing committee of

three members, designating one of the members as its chairman.

The Auditing Committee shall inspect all bills against the Association, and no bill shall be paid except upon voucher or draft having the approval of at least two of the three members of the auditing committee; provided, that all bills not having the sanction of the three members of the auditing committee shall be referred to the Executive Committee, the latter committee to have authority to take such action in regard thereto as in its judgment seems best.

(Item 28.)

#### Section 7.—Preparation of Budget—Annual Assessment

The Auditing Committee, prior to December 1 of any year, shall submit to the Executive Committee, for consideration at its December meeting, a budget under which the Association shall work in the fiscal year following the next annual session.

The Executive Committee, after consideration of the Auditing Committee's proposed budget, shall submit the same to the Council, prior to the Spring meeting of the Council, with a report of its own containing suggested changes, additions, or comments.

The Council in turn shall consider the two proposed budgets so submitted, and shall then make a final draft of a proposed budget for the Association, to be submitted to the House of Delegates at the next annual session.

The Council shall recommend to the House of Delegates the amount of the annual dues or assessments of each member of the Association.

(Item 29.)

#### Section 8.—Executive Committee of the Council

The Executive Committee of the Council shall consist of the President, the President-Elect, the Speaker of the House of Delegates, the Chairman of the Council, the Chairman of the Auditing Committee, the Secretary-Treasurer and the Editor.

##### Officers

The Executive Committee shall elect its own chairman. The Secretary-Treasurer of the Association shall act as the secretary thereof.

##### Quorum

Four members shall constitute a quorum.

##### Duties and Powers

The Executive Committee shall aid and assist the officers and the Council in the transaction of the business of the Association in the intervals between the meetings of the Council. It shall have such advisory powers and such other duties as the Council shall from time to time determine.

##### Records

It shall keep a record of its proceedings and report the same to the Council.

##### Approval of Council Necessary for Validation

All of its proceedings shall be subject to the approval of the Council.

(Item 30.)

#### Section 9.—Meetings and Powers of the Council

The Council shall hold such meetings and perform such other duties as are provided by the By-Laws or as the House of Delegates may by resolution prescribe.

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#### ARTICLE VII.—SCIENTIFIC ASSEMBLY

(Item 31.)

#### Section 1.—Objects

The Scientific Assembly of the California Medical Association is the convocation of its members for the presentation and discussion of subjects pertaining to the science and art of medicine.

(Item 32.)

**Section 2.—Sections**

The Scientific Assembly is divided into sections, each section representing that branch of medicine described in its title.

(Item 33.)

**Section 3.—Creation of New Sections**

New sections may be created or existing sections discontinued by the House of Delegates. The Scientific Assembly and its sections shall be conducted in accordance with the rules and regulations set forth in this Constitution and By-Laws, and with such other instructions and rules from either the House of Delegates or the Council as may not be in conflict therewith.

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**ARTICLE VIII.—SESSIONS AND MEETINGS**

(Item 34.)

**Section 1.—Annual Sessions of the Association, of the House of Delegates and of the Scientific Assembly**

The Association shall hold an annual session, during which there shall be at least two general meetings, open to all registered members, delegates, and guests.

At such annual session the House of Delegates and Scientific Assembly of the California Medical Association shall also meet.

(Item 35.)

**Section 2.—Time and Place of Meetings**

The time and place for holding each annual session shall be fixed by the Council, and due notice thereof shall be printed in the official publication of the Association.

(Item 36.)

**Section 3.—Special Meetings; How Called; Notice Thereof**

Special meetings of the Association may be called by a three-fourths vote of the House of Delegates or of the Council, and if so called shall be held at such time and place as the Council shall fix.

The Council shall cause written notice thereof stating the object of the meeting to be sent by United States mail, postage fully prepaid, to each active member of the Association, addressed to him at his office or place of residence as shown by the records of the Secretary's office, at least fifteen days prior to the date of meeting.

(Item 37.)

**Section 4.—Regular Annual Sessions of House of Delegates**

The House of Delegates shall hold a regular session annually consisting of at least two meetings, the second whereof shall not be convened until at least twenty-four hours shall have elapsed subsequent to the convening of the first meeting.

**Place of Meeting**

The regular annual session of the House of Delegates shall be held at the same place as the regular annual session of the Association, and the Council shall fix the times for the first two meetings.

**Notice of Meeting**

The same notice shall be given of such sessions and the meetings thereof as that prescribed for the regular annual sessions of the Association.

(Item 38.)

**Section 5.—Special Sessions of House of Delegates**

Special sessions of the House of Delegates may be called at any time by a two-thirds vote of the members of the Council at any regular or special meeting thereof or by written call stating the object of the meeting, filed with the Secretary in the office of the Association and signed by one-half or more of the members of the House of Delegates.

**Time and Place of Meeting**

Upon the filing of such call with the Secretary, the Council shall within thirty days thereafter fix the time and place for the holding of such special meeting and cause written notice thereof stating the object of the meeting to be sent by United States mail, postage fully prepaid, to each member of the House of delegates, addressed to him at his office or place of residence as shown by the records of the Secretary's office, at least fifteen days prior to the date of meeting.

(Item 39.)

**Section 6.—Quorum of House of Delegates**

Thirty-five members shall constitute a quorum of the House of Delegates.

All meetings shall be held within the State of California.

\* \* \*

**ARTICLE IX.—OFFICERS**

(Item 40.)

**Section 1.—Officers**

The officers of this Association shall be a President, a President-Elect, a Retiring President, a Secretary-Treasurer, a Speaker of the House of Delegates, a Vice-Speaker of the House of Delegates, an Editor, and fifteen Councilors (six of the fifteen Councilors being elected as at large, and nine from Councilor districts, as otherwise provided.)

(Item 41.)

**Section 2.—President-Elect—When and How Elected; Term of Office**

The House of Delegates at the regular annual session thereof shall elect the President-Elect to serve until the adjournment of the final meeting of the House of Delegates at its next regular annual session. At the conclusion of the final meeting of the House of Delegates at its next regular annual session, the Senior President-Elect shall assume the office of President, and serve as such for the term of one year thereafter, or until his successor is elected.

(Item 42.)

**Section 3.—Speaker and Vice-Speaker of House; When Elected; Term of Office**

The House of Delegates shall at the regular annual session thereof elect a Speaker of the House of Delegates and a Vice-Speaker of the House of Delegates, each to serve for the term of one year, or until their successors assume office.

(Item 43.)

**Section 4.—Officers as Ex-Officio Members of Council**

The President, President-Elect, Retiring President, and Speaker of the House of Delegates shall be ex-officio members of the Council, with all the rights of Councilors.

The Secretary-Treasurer and the Editor shall also be ex-officio members of the Council, but shall not have the right to vote; provided, that a Secretary-Treasurer or an Editor who is not a member of the Association, shall not be such ex-officio member of the Council.

(Item 44.)

**Section 5.—Terms of Officers Other Than Councilors**

The officers, except the Councilors, and except as otherwise provided, shall be elected annually.

(Item 45.)

**Section 6.—Terms of Councilors**

Each Councilor shall be elected for a term of three years.

(Item 46.)

**Section 7.—Councilors to Be Elected in Different Years**

Three District Councilors and two Councilors-at-Large shall be elected each year.



(Item 47.)

**Section 8.—Councilors; Method of Election**

When Councilor positions become vacant, or when regular Councilor terms expire and necessitate an election, then such elections shall always be for specific councilorships, one by one, until all such emergency or regular vacancies shall have been filled.

(Item 48.)

**Section 9.—Terms of Officers**

All officers shall serve until their successors are elected and installed either in person or by announcement.

(Item 49.)

**Section 10.—Election of Councilors on Adoption of This Constitution**

Upon the adoption of this Constitution the House of Delegates shall proceed to elect Councilors in accordance with the provisions of this Constitution, as follows: At the annual meeting at which this Constitution is adopted, the Councilors of the First, Second and Third Districts and two Councilors at large shall be elected; in the succeeding year, the Councilors of the fourth, fifth and sixth districts and two Councilors at large shall be elected; and in the year succeeding, the Councilors of the seventh, eighth and ninth districts and two Councilors-at-large shall be elected; and so on in sequence in the years to follow.

Where there is a conflict with the above provisions, as regards the time of expiration of office of any Councilors holding office at the time this Constitution is adopted, then the terms of such Councilors holding office shall cease at such times so that the above provisions may become operative; and any lapses of continuity of office arising through the above provisions, shall be filled by the House of Delegates or the Council, as in the case of other vacancies.

When a component county society shall have more than fifteen hundred members, two of the Councilors-at-large shall be elected from its membership; the district Councilor from each such county, and the two said Councilors-at-large each being elected in different years in calendar sequence.

(Item 50.)

**Section 11.—Terms of the President-Elect, the President, and the Retiring President**

The President-Elect, upon his election, shall serve as such until the adjournment of the final session of the House of Delegates at its next regular annual meeting.

At the conclusion of the final session of the House of Delegates at the next regular annual meeting, the President-Elect shall assume the office of President, and serve as such for the term of one year thereafter, or until his successor assumes office as otherwise provided.

Immediately upon the completion of his one-year term as President, he shall serve as an officer as the Retiring President, and he shall serve in this capacity for one year, until his successor assumes office as Retiring President, as otherwise provided.

(Item 51.)

**Section 12.—Powers and Duties of the President-Elect**

The President-Elect shall act for the President in his absence or disability, and if the office of President become vacant the President-Elect shall then succeed to the Presidency to serve as such for such unexpired term and for the term of one year thereafter.

(Item 52.)

**Section 13.—Election of Council Chairman; Council Vice-Chairman; Secretary-Treasurer; Editor or Editors**

The Council after the last meeting of the House of Delegates at the regular annual session of the Asso-

ciation shall elect a Chairman and a Vice-Chairman of the Council and the Secretary-Treasurer and the Editor or Editors each to serve for the term of one year.

(Item 53.)

**Section 14.—Qualifications of Secretary-Treasurer and Editor**

No person shall be eligible to the office of Secretary or Editor who does not hold the degree of Doctor of Medicine, but membership in this Association shall not be a necessary qualification for the office of either Editor or Secretary-Treasurer.

(Item 54.)

**Section 15.—When Terms of Office of Speaker, Vice-Speaker and Councilors Begin**

The terms of office of the Speaker of the House of Delegates (which terms are herein generally stated to be one year) and the terms of office of the Councilors (which terms are herein generally stated to be three years) shall commence immediately upon the adjournment of the last meeting of the House of Delegates of the regular annual session of the Association at which such officers are elected, and shall continue up to the adjournment of the last meeting of the House of Delegates at the annual session of the Association of the year in which the term of office ends.

(Item 55.)

**Section 16.—Officers to Hold Office Until Successor Is Elected**

Every officer shall hold office until his successor is elected and installed in office.

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**ARTICLE X.—FUNDS, PROPERTY AND ASSESSMENTS**

(Item 56.)

**Section 1.—Annual Assessment of Dues—Other Sources of Funds**

Funds shall be raised by an equal annual per capita assessment of dues upon the active members and by an equal annual per capita assessment thereof upon the associate members.

The amount of the assessments shall be fixed by the House of Delegates by majority vote of the members present and voting.

Funds may also be raised by voluntary contributions, through bequests, legacies, devises and gifts, and from the Association's publications, by special assessments and in any other manner approved by the House of Delegates.

All resolutions providing for appropriations shall be referred to the Council and all appropriations approved by the Council shall be included in the annual budget.

(Item 57.)

**Section 2.—All Funds and Moneys to Be Paid to Secretary-Treasurer and Deposited with Depositary**

All funds and moneys received for the Association by any officer or agent thereof shall be promptly paid to the Secretary-Treasurer and by him deposited with a depositary selected as such by the Council.

All depositaries selected by the Council shall be banks or trust companies duly licensed to transact business as such in the State of California.

(Item 58.)

**Section 3.—Membership Interest in Association Property; Only Active Members in Good Standing Have Any Interest in Association Property**

No person other than an active member in good standing shall have any interest in the property of the Association and the interest of any active member therein shall cease when he ceases to be a member of the Association.

If any active member shall resign or otherwise cease to be an active member of the Association,

all of his interest in and to all property of the Association shall cease and such cessation or membership shall operate as a release and assignment to the Association of all the right, title and interest of such member in and to all of the property of the Association.

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#### ARTICLE XI.—REFERENDUM

(Item 59.)

##### Section 1.—How Referendum May Be Brought About

The House of Delegates at any session thereof at any regular or special meeting may by a two-thirds vote of all of its members, or the Council at any meeting thereof may by a three-fourths vote of all its members, submit any question, matter or proposition to all the members of the Association by mail, and a majority of the votes cast by mail by members of the Association shall be final and bind and govern the Association upon the question, matter or proposition so submitted to the membership.

(Item 60.)

##### Section 2.—Council to Determine Form of Referendum; Time of Voting; Canvass

The Council shall prescribe, fix and determine the form of the question, matter or proposition so referred to the members and the time within which such vote shall be cast.

All votes must be in writing and mailed or delivered to the Secretary's office. The canvass thereof shall be under the direction of the Council.

(Item 61.)

##### Section 3.—Referendums on Action of House of Delegates

The action of the House of Delegates shall be final and binding upon all members of the Association unless a referendum as herein provided, is voted by the House of Delegates by a vote of at least two-thirds of the members thereof, at the same session thereof at which the action was taken or the vote or resolution was had or adopted, or unless the Council by a three-fourths vote of all its members, shall within the period of thirty days after adjournment of such meeting of the House of Delegates vote to hold a referendum on such action, vote or resolution of the House of Delegates.

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#### ARTICLE XII.—PUBLICATIONS

(Item 62.)

##### Section 1.—Scientific Journal

The Association shall publish and distribute an official journal in the interest of the Association and of its members, devoted to the advancement of medical thought and science, to medical organization, and for the dissemination of medical and public health information.

(Item 63.)

##### Section 2.—Annual Directory

The Association shall publish an annual directory of members, with such other information as the Council may direct.

(Item 64.)

##### Section 3.—Pre-Convention Bulletin

The Association, prior to the annual session, shall print a pre-convention bulletin, which shall contain reports of officers and committees; provided, that the Council shall have the right to delete or modify such reports as in its judgment is deemed best; and provided further, that committees whose reports have been deleted or modified shall have the right to submit them to the House of Delegates in their original form if the committees so desire.

A copy of the pre-convention bulletin shall be given to each delegate and alternate, on registration.

#### ARTICLE XIII.—SEAL

(Item 65.)

##### Section 1.—Seal

The Association shall have an Association seal consisting of a circle having on the circumference the words "California Medical Association, Eureka, 1865," with such further emblems, figures and words as the House of Delegates, on recommendation from the Council, shall prescribe.

The power to change or renew the seal shall rest with the House of Delegates.

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#### ARTICLE XIV.—INCORPORATION

(Item 66.)

##### Section 1.—Incorporation

To aid in carrying out the objects of the Association, the House of Delegates at any session of any regular or special meeting thereof, may by a two-thirds vote of the members thereof present and acting, authorize, empower and direct the Council to cause the formation and organization of a non-profit corporation under the laws of the State of California without capital stock, with such incorporators, name, purposes, objects, principal place of business, term number of directors and directors to serve for the first year and until their successors are elected, and with such provisions regarding the voting power and property rights and interests of the members of the corporation and such further provisions in the Articles of Incorporation thereof, and with By-Laws and composed of such members representing this Constitution as the Council shall prescribe, fix and determine. The House of Delegates may at its option in connection with the granting and giving of such authority, power and direction to the Council, prescribe, fix and determine any or all of such matters pertaining to the said corporation, its Articles of Incorporation and any provision thereof, By-Laws and membership, and its action thereon shall bind the Council; and the House of Delegates at any session of any regular or special meeting thereof may by a two-thirds vote of the members thereof present and acting, authorize, empower and direct the Council to grant, assign, transfer, convey and deliver to the said corporation upon the formation thereof without any consideration therefor, any property, real or personal, of the Association, which authorization, power and direction may be given prior or subsequent to the formation and organization of said corporation.

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#### ARTICLE XV.—AMENDMENTS

(Item 67.)

##### Section 1.—Procedure to Amend Constitution

Any member of the House of Delegates at any session or any regular annual meeting thereof may present an amendment or amendments to any article or articles or any section or sections of any article of this Constitution.

Such proposed amendment or amendments must be in writing and shall be filed with the Secretary and shall thereafter be published at least twice in separate issues of the official journal of this Association.

At the first regular session of the House of Delegates thereafter held, such proposed amendment or amendments shall be submitted to the House of Delegates, for consideration of the same at that or a subsequent meeting of the House of Delegates during that annual session, and if two-thirds of the Delegates present and voting, vote in favor thereof, the same shall be adopted.

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#### ARTICLE XVI.—REPEAL OF ALL PROVISIONS OF PRESENT CONSTITUTION

(Item 68.)

##### Section 1.—Repeal of Present Constitution

All articles and all sections of all articles of the existing Constitution are hereby repealed.



**BY-LAWS****CHAPTER I.—COMPONENT SOCIETIES**

(Item 69.)

**Section 1.—Component Society Charters**

The charter of each component society shall provide that all the provisions of the Constitution and By-Laws of this Association in force at the time of the issuance of such charter, together with all amendments to either thereof thereafter adopted, in so far as the same are applicable, shall be an integral part of the Constitution and By-Laws of the component society to which the charter is issued and that the terms and provisions thereof shall control and govern such component society, the officers and members thereof, and that the constitution and by-laws of the component society shall not be amended in any way to conflict or be inconsistent with the constitution and by-laws of this Association.

Each newly granted charter shall be signed by the President and the Secretary of this Association.

(Item 70.)

**Section 2.—Revocation of Component Society Charters**

The charter of any component society may be revoked by the House of Delegates if, after the filing with the Secretary of this Association of a written petition or protest signed either by the Chairman of the Council pursuant to resolution adopted by the Council by the affirmative vote of two-thirds of all the members thereof, and after due notice of hearing and after hearing thereof, the House of Delegates by a two-thirds vote of its qualified members decides that the provisions of the constitution or by-laws of this Association or of the charter of such society has been so breached by such society or that such society has committed acts or conducted itself in conflict with the constitution, by-laws or purposes of this Association to such extent as to make such revocation desirable in the best interests of this Association.

(Item 71.)

**Section 3.—Only One Component Society in Any County**

Not more than one component society shall be chartered by this Association in any one county of the State of California.

**Geographical or Specialty Sections**

A component society may authorize the formation and existence of branch geographical or specialty sections for scientific investigation and work only, the members of which geographical sections or specialty sections must be members of such component county society.

**Members in Sections to Be Members of Respective Component County Societies**

No branch or geographical or specialty section shall be permitted to have any classes of members, which classes in whole or in part could be made up of non-members of the component county society of which any such geographical or specialty section is a branch or subdivision; provided that nothing in this section shall be construed as limiting the guest privileges of such non-members at such section meetings.

(Item 72.)

**Section 4.—Component Society Comprising Two or More Adjoining Counties**

A component society may be chartered to comprise the eligible doctors of medicine resident in two or more adjoining counties, in such cases where the interests of the membership will be best served thereby, and when so duly chartered and instituted, such society shall function as one of the component county societies of this Association.

(Item 73.)

**Section 5.—Component Society Sole Judge of Qualifications for Membership**

Each component society shall be exclusive judge of the qualifications for membership therein; provided, however, that eligibility for admission as an active member of a component county society shall be based upon the minimum requirements of the constitution of this Association therefor.

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**CHAPTER II.—MEMBERSHIP**

(Item 74.)

**Section 1.—What Constitutes Membership**

The name of a physician on the official roster of this Association, after it has been properly reported by the secretary of his county society, and after the dues or other assessments due this Association shall have been paid by the component county society for each such member, according to the class of membership held by each component county society member, shall be prima facie evidence of membership and of his right to register at the Annual Session.

(Item 75.)

**Section 2.—When Membership Lapses**

No person who is under sentence of suspension or expulsion from any component society of this Association, or whose name has been dropped from its roll of members, shall be entitled to any of the rights or benefits of this Association.

(Item 76.)

**Section 3.—Registration at Annual Meetings Necessary for Participation Therein**

Each member in attendance at the Annual Session shall register, after his right to membership has been verified by reference to the records of this Association. No member shall take part in any of the proceedings of the Annual Session until he has complied with the provisions of this section of the By-Laws.

(Item 77.)

**Section 4.—Component Society Secretaries to Furnish Data on Applications for Memberships**

The secretary of each component society, on form blanks supplied by this Association for that purpose, shall notify the Secretary-Treasurer of this Association in writing as soon as possible of each application for membership in such component society of the name, address, and all other particulars regarding the applicant known to the secretary of such component society.

(Item 78.)

**Section 5.—County Membership Lists to Be Sent to Association Secretary**

It shall be the duty of the secretary of each county society to furnish the Secretary of the Association before the first day of March of each year a list by names and addresses of all members in good standing on the first day of January of each year, and to notify in writing the Secretary of this Association monthly of all changes in membership of the constituent society, with corresponding change of address.

No licensed physician of this state, whose other qualifications comply with the standards of this Association, shall be eligible for election in a component county society who has not actually established his residence in the county for at least six months prior to the date on which application for such membership is made; provided, however, that this time requirement as to residence shall not apply to applicants who seek admission to a component

county society by proper transfer credentials from some other component county society of this Association.

(Item 79.)

**Section 6.—Membership Where No Component Society Exists**

Any doctor of medicine residing in a county of the state in which there is no component society may make application and if qualified and elected as such be admitted to the component society most convenient to the county in which he resides.

**Membership in Society of Different County**

Any doctor of medicine living on or near a county line shall be eligible and may apply for and be elected to membership in that component society most convenient for him to attend, provided that the consent of the component society of the county in which the doctor resides be first obtained.

(Item 80.)

**Section 7.—Membership as Affected by Transfer of Residence**

A member who changes his residence from the county through whose society he holds membership in this Association, to another county in which there is a county society, is eligible to membership in the component county society of his new residence on the presentation of a transfer card, and an official statement that his dues have been paid in full in the society in which he holds membership; provided that no evidence which would otherwise disqualify him for membership arise.

He shall forfeit his membership in this Association one year after change of location unless he makes proper application for membership in the society of the county to which he has moved.

Any member who has heretofore changed his residence as aforesaid shall have one year after the date of adoption hereof to comply with the provisions of this section.

If a member who so transfers his residence be not elected to membership in the society of the county into which he has moved, he shall have the right to maintain his membership through payment of dues, in the society of the county of his former residence, if that county society gives its sanction.

(Item 81.)

**Section 8.—Membership Where Office and Residence Are in Different Counties**

A physician who is a member of a component county society and who states he has his major office for professional practice in one county, even though his legal home or residence may be in some other county, may have the option of applying for membership in the county medical society of the county in which he has his major office for professional work or of maintaining his membership in the county medical society in which he has his legal home or residence, provided the two component county societies involved each give their sanction to such choice of membership.

(Item 82.)

**Section 9.—Expulsion and Loss of License**

Any member expelled from his component society, or any active member whose license to practice medicine and surgery in the State of California is revoked shall thereupon cease to be a member of this Association.

Expulsion shall be deemed to occur when the same becomes final under the Constitution and By-Laws of this Association.

Revocation of license shall be deemed to occur when the same becomes final in law.

**Loss of Rights, Upon Suspension by County Society**

Any member of this Association who is suspended from his component county society, shall be auto-

matically suspended from the rights and privileges of this Association during the period in which suspension in the component county society exists.

(Item 83.)

**Section 10.—Appeal to Council and to House of Delegates**

Any physician who may feel aggrieved by the action of his component society in censuring, suspending or expelling him, shall have the right to appeal to the Council of this Association within the period of two months next succeeding the date of such action of his component society, which appeal shall be in writing and filed within the said period in the office of the Secretary of this Association, who in turn shall present the appeal to the first subsequent meeting, held by either the Executive Committee or Council.

Within the period of three months after a decision by the Council thereon, any party interested may appeal in writing to the House of Delegates, through the Secretary of the Association. The decision of the House of Delegates in any case shall be final.

Appeals shall be heard by the Council or House of Delegates only after reasonable notice in writing of the time and place of the hearing of the appeal, to the appellant member and the president and secretary of the component society.

(Item 84.)

**Section 11.—Hearing Appeals**

In hearing appeals, the Council or the House of Delegates, as the case may be, shall review all questions involved and may appoint committees or any notary public to act as referee or referees for the purpose of taking evidence upon any points or questions.

Such referee reports shall thereafter be submitted to the Council or to the House of Delegates, as the case may be.

The body before whom the appeal is pending shall use any lawful means which in its judgment will best and most fairly present all the facts involved.

In every case of appeal, the individual councilors and the Council as a board, prior to any hearing being held upon the appeal, by either the Council or by the House of Delegates, shall exert all proper efforts at conciliation and compromise.

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**CHAPTER III.—HOUSE OF DELEGATES**

(Item 85.)

**Section 1.—Time and Place of Meeting**

The House of Delegates shall meet annually at the time and place of the annual sessions of this Association.

(Item 86.)

**Section 2.—Number of Delegates and Alternates per Component Society**

Each component county society shall be entitled to send each year one delegate to the House of Delegates for each fifty full-paid members or major fraction thereof in this Association, as of date of the first day of November of the preceding year; provided, however, that each county society shall be entitled to at least one delegate.

The secretary of the Association in the January or February issue of the official journal shall print the membership figures of county units, as of November 1 of the preceding year.

Each component county society, for each delegate to which it is entitled, also shall elect a corresponding alternate, as above provided.

(Item 87.)

**Section 3.—Quorum**

Thirty-five delegates shall constitute a quorum of the House of Delegates. All meetings of the House



of Delegates shall be open to members of the Association, except when by a two-thirds vote, the House of Delegates goes into executive session.

(Item 88.)

**Section 4.—Component Society Secretaries to Furnish Lists of Delegates and Alternates**

The secretary of each component society in the month of January and in no event later than fifteen days prior to the annual session of the House of Delegates, on form blanks sent in January to each component society by the Secretary of this Association, shall forward to the Secretary of this Association the names and addresses of the delegates and alternates elected by the component society to the House of Delegates, and certify to the Secretary of this Association the date of such election and the term for which each delegate and alternate is elected.

Failure to forward said names and addresses within said time to the Secretary shall disqualify said delegates and alternates for said session, unless the Council, for good cause shown, shall excuse such default, such action of the Council, however, being subject to the approval of the House of Delegates.

(Item 89.)

**Section 5.—Delegates or Alternates Absent from Session Disqualified**

Any delegate absent from an annual session to which he has been duly elected, who has not notified the secretary of his component society at least fifteen days before the convening of said session of his inability to attend, shall be ineligible for reelection as a delegate for the next two years succeeding the expiration of his term of office.

Secretaries of county societies shall in writing notify delegates and alternates of their elections, and in so doing, shall call their attention to the provision of this by-law.

(Item 90.)

**Section 6.—Rights and Duties of Alternate Delegates**

The House of Delegates concurring, an alternate shall take the place and perform the duties of any delegate of the delegation from such component society who is absent from any meeting, as otherwise herein provided.

(Item 91.)

**Section 7.—Credentials and Reference Committee**

From among members of the House of Delegates the Speaker of the House of Delegates, for the purpose of better carrying on the work of the House of Delegates, shall appoint prior to or at the beginning of an annual session the following as reference committees:

- (a) A Committee on Credentials.
- (b) A Reference Committee on Reports of Officers and of Standing Committees.
- (c) A Reference Committee on Resolutions and on New and Miscellaneous Business.

**Membership of Credentials and Reference Committees**

Each of the aforesaid committees shall consist of three members of the House, the chairman of each to be designated by the Speaker.

The Speaker, the House concurring, shall refer to these committees such matters as are deemed proper.

The Reference Committees shall present written reports dealing with and making recommendations on all matters submitted to them. The reports of each committee, by its chairman, shall be read first as a whole, and the House of Delegates shall then

act and vote upon the report as a whole or section by section, as it may deem best.

**Special Speaker Committees of House of Delegates**

The Speaker, the House concurring, shall have the right to appoint special committees for special work. All committees of the House of Delegates shall present, in writing, their reports to the House.

**Data and Work of Credentials Committee**

The Secretary of the Association shall supply the Committee on Credentials with the necessary information concerning the membership of the House of Delegates.

The Secretary shall give this committee a list of component county societies, showing the total membership as of November 1 of the preceding year. This committee shall ask each delegate and alternate to present his written credentials, but shall accept the official written list submitted by the secretary of any component society; provided that such written list be sent to the State Association Secretary at least fifteen days before the beginning of the annual session.

(Item 92.)

**Section 8.—Delegates to the American Medical Association**

The House of Delegates shall elect delegates and alternates to the House of Delegates of the American Medical Association in accordance with the constitution and by-laws of that organization.

(Item 93.)

**Section 9.—Formation of Councilor Districts and Societies**

The House of Delegates, at least once in every ten years, upon recommendation by the Council, or on its own initiative, shall divide or regroup the state into its Councilor Districts, specifying what counties each district shall include; and, when the best interests of the Association and the profession will be promoted thereby, shall organize in each Councilor District a district medical society, of which all members of the component county societies shall be members.

(Item 94.)

**Section 10.—Special Committees Elected by the House of Delegates**

The House of Delegates shall have authority to appoint committees for special purposes from among members of the Association who may or may not be members of the House of Delegates. Such committees shall report to the House of Delegates; and the members, the House concurring, may participate in the debate on their reports.

(Item 95.)

**Section 11.—Budget**

The House of Delegates shall approve an annual budget of expense to be submitted to it by the Council.

(Item 96.)

**Section 12.—Approval of Memorials**

The House of Delegates shall approve all memorials and resolutions issued in the name of the Association during an annual session before they shall become effective.

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**CHAPTER IV.—SESSIONS AND MEETINGS**

(Item 97.)

**Section 1.—Registry of Members**

Each member of the Association in attendance at the annual session shall register with the Secre-

tary, and no member shall take part at the annual meetings of the session unless he has registered and holds a membership card.

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#### CHAPTER V.—GENERAL AND SECTION MEETINGS

(Item 98.)

##### Section 1.—General Meetings; Programs of

The General Meetings shall be open to all registered members and guests.

Before the General Meetings, at such time as may have been arranged, shall be delivered the annual address of the President and, with the sanction of the Council, such other orations or special addresses and reports as may be deemed desirable.

(Item 99.)

##### Section 2.—Time Length of Papers

No address or paper, except those of the President, and the annual orations, shall occupy more than twenty minutes in its delivery.

(Item 100.)

##### Section 3.—Time Length of Discussions

No member, except by unanimous consent, shall speak more than once in the discussion of any paper nor longer than five minutes at any one time.

(Item 101.)

##### Section 4.—Scientific Papers Property of Association

All papers read before this Association shall be its property.

Each paper, when it has been read, shall be deposited with the Section Secretary, by him to be properly turned over to the Secretary of the Association.

(Item 102.)

##### Section 5.—Scientific Papers Not to Be Published Elsewhere

Authors of papers read before this Association shall not cause them to be published elsewhere except with the consent of the journal of this Association.

(Item 103.)

##### Section 6.—All Meetings of Same Section in Same Locality

The general meeting of the Association, the meetings of the House of Delegates, and the meetings of the Scientific Assembly and its sections at any session shall be held in the State of California at the same locality and in buildings as convenient of access, one to the other, as may be possible.

\* \* \*

#### CHAPTER VI.—ELECTION OF OFFICERS

(Item 104.)

##### Section 1.—Time of Election of Officers

The election of officers shall be the first order of business of the House of Delegates at the second meeting of the House of Delegates.

(Item 105.)

##### Section 2.—Election by Ballot; Number of Votes Necessary

All elections of officers shall be by ballot; provided, that by unanimous consent ballot election may be waived.

A majority of the votes cast shall be necessary to elect an officer, except for delegates and alternates to the American Medical Association.

In case no nominee receives a majority of the votes on the first ballot, the nominee receiving the lowest number of votes shall be dropped and a new ballot taken. This procedure shall be continued until one of the nominees receives a majority of all the votes cast, when he shall be declared elected.

(Item 106.)

##### Section 3.—Election of Delegates to A. M. A.

In case no delegates or alternates for the American Medical Association receive on the first ballot

a majority of the vote, the nominees shall be declared elected in the order of the highest number of votes received, one being so elected on each ballot until the allotted number shall have been chosen. In case of a tie vote for delegate or alternate, the tie shall be determined by lot. Ballots for vacancies shall be taken for each vacancy, one by one.

An alternate must be specifically elected for each delegate.

(Item 107.)

##### Section 4.—Regular Council Meetings; Frequency and Where Held

The Council shall meet on the day preceding the annual session of the Association and daily during such session, and shall also hold at least three other regular meetings during the year, at least one of which shall be held in the southern part of the state.

The time and place of each such meetings shall be fixed by the Council at a previous meeting and at least ten days' notice by mail shall be given each Councilor by the Secretary of the time and place of such regular meetings.

(Item 108.)

##### Section 5.—Special Council Meetings; How Called; Where Held

Special meetings of the Council may be called by the Chairman at any time and he shall call such meeting upon the written request of at least three Councilors filed with the Secretary, stating the object of the proposed meeting. Written notice of the time, place and object of such meeting shall be given by the Secretary to all members of the Council at least seven days prior to such meeting. All special meetings of the Council shall be held at the office of the Association unless another place is selected by majority vote of all members of the Council.

(Item 109.)

##### Section 6.—Executive Committee Meetings

The Executive Committee shall meet on call of the President, the Chairman of the Council or the Secretary-Treasurer, on forty-eight hours notice by mail or telegraph to the members thereof, if the meeting is to be held at the office of the Association; otherwise on at least three days notice of the time and place of meeting.

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#### CHAPTER VII.—DUTIES OF OFFICERS

(Item 110.)

##### Section 1.—Duties of the President

The President shall preside at all meetings of the Association.

He shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and shall perform such other duties as custom and parliamentary usage may require, or as the Council or House of Delegates may direct.

He shall be the real head of the profession of the state during his term of office, and, as far as practicable, shall visit, by appointment, the various sections of the state and assist the Councilors in building up the county societies, and in making their work more practical and useful. The Council shall decide what portion of the expenses incurred on his official visits shall be paid by the Association.

He shall be ex-officio a member of all committees of the Association.

He shall be ex-officio a member of the Council. As Retiring President, for a period of one year immediately succeeding his term of office, he shall be ex-officio a member of the Council.

(Item 111.)

##### Section 2.—Duties of the President-Elect

The President-Elect shall be a member of the Council ex-officio, and shall act for the President in



his absence or disability. If the office of President should become vacant the President-Elect shall succeed to the presidency.

(Item 112.)

**Section 3.—Vacancy in Offices of President and President-Elect; How Filled**

In case of vacancy in the office of both President and President-Elect, the chairman of the Council shall act as the Acting President until a President is elected at the next meeting of the House of Delegates.

(Item 113.)

**Section 4.—Duties of the Secretary-Treasurer: Shall Keep Minutes**

The Secretary-Treasurer shall attend the General Meetings of the Association, the meetings of the House of Delegates, of the Council and of the Executive Committee, and shall keep minutes of their respective proceedings in separate record books.

**Custodian of Records**

He shall be custodian of all record books and papers belonging to the Association.

**Registrar at Annual Meetings**

He shall provide for the registration of the members and delegates at the Annual Session.

**Shall Keep Index Register of California Medical Licentiatees**

He shall, with the cooperation of the secretaries of the component societies, keep a card-index register of all the legal practitioners of the state by counties, noting on each his status in relation to his county society; and shall transmit a copy of this list to the American Medical Association, transmitting to its secretary each month a report containing the names of new members and the names of those dropped from the membership roster during the preceding month.

**Register of Component Societies, Their Members and Officers**

He shall keep a register of all component societies, their respective officers, and of all members of the Association with their addresses, and unless otherwise instructed by the Council shall compile an annual directory of the same.

**Notices**

He shall give all notices required by the Constitution and By-Laws of this Association, or by order of the Council, or of the Executive Committee, or by law.

**Shall Conduct Correspondence and Notify Committees**

He shall conduct the official correspondence, promptly notifying in writing, members of meetings, officers of their election, and committees of their appointment and duties, as outlined in the motions creating such committees.

**Assistants; How Employed**

He shall employ and dispense with such assistants as may be ordered by the Council. The Council by resolution may outline the scope and duties of special employees acting under the Secretary-Treasurer.

**Shall Provide Necessary Blanks to Component Societies**

He shall supply all component societies with the necessary blanks for making their annual reports to this Association, and shall collect from them the regular per capita assessments and deposit the same in such depository banks as may be designated as such by the Council.

**Salary**

The amount of his salary shall be fixed by the Council.

**Shall Give Bond**

He shall give bond in such sum as may be decided upon by the Council. The Association shall pay the premium on the said bond.

**Duties as Treasurer**

He shall as Treasurer demand and receive all funds due the Association, together with bequests and donations, and shall promptly deposit the same in the proper one of the depositories thereof; and shall keep a proper and accurate record thereof, as well as of all funds disbursed by the Association.

**Audits and Reports**

He shall subject his accounts to such examination or audit as the House of Delegates or Council may order.

He shall annually render an account of his work, and of the state of the funds in his hands, and make a report on the same and of his work as Secretary to the House of Delegates. He shall in writing also make such other reports as the Council may request.

**Association Moneys; How Paid Out**

He shall pay out the money of the Association only upon a check or draft as otherwise provided herein.

**Contracts**

He shall countersign all contracts and agreements to which the Association is a party.

**Checks; How Drawn**

The Secretary-Treasurer shall issue such checks or drafts only upon vouchers approved and signed by at least two of the three members of the Auditing Committee, as otherwise provided.

**Other Duties**

He shall perform such other duties as the Council may direct.

**As Chairman of Committee on Publication Advertisements**

The Secretary-Treasurer shall be chairman of a committee on advertisements, consisting of the Secretary-Treasurer, the Editor and the Chairman of the Executive Committee, to examine, reject, approve or modify all applications for advertisements in the publications of the Association; provided, that the Council or through it the Executive Committee, may give special instructions in regard to any phases thereof. He shall also send out the statements and keep an accurate accounting of all moneys so received, and in connection therewith.

(Item 114.)

**Section 5.—Duties of Chairman of the Council**

The Chairman of the Council shall preside at all meetings of the Council. The Chairman of the Council shall sign all contracts and checks or drafts for the withdrawal of funds of the Association. He shall, on behalf of the Council, deliver its annual report to the House of Delegates.

(Item 115.)

**Section 6.—Duties of Vice-Chairman of the Council**

The Vice-Chairman of the Council, in the absence or inability of the Chairman to act, upon instructions from the Council, shall be vested with all the powers and shall perform all the duties of the Chairman.

(Item 116.)

**Section 7.—Speaker of the House of Delegates; Duties and Powers**

The Speaker of the House of Delegates shall preside at the meetings of the House and shall perform such other duties as parliamentary usage may

require. He shall appoint all committees authorized by the House of Delegates, unless otherwise provided.

He shall be ex-officio, a member of the Council.

(Item 117.)

#### Section 8.—Vice-Speaker; Duties

The Vice-Speaker shall act as Speaker in the absence of or at the request of the Speaker. The Vice-Speaker shall not have ex-officio membership in the Council.

(Item 118.)

#### Section 9.—Editor

The Editor or Editors shall compile, edit, and have charge of the journal of the Association and such other publications as may be authorized for or on behalf of the Association.

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#### CHAPTER VIII.—COUNCIL

(Item 119.)

#### Section 1.—Times and Places of Meetings

The Council shall meet on the day preceding the Annual Session and daily during the session and at such other times as necessity may require, subject to the call of the chairman or on petition of three Councilors.

**Organization.**—It shall meet on the last day of the Annual Session of the Association to organize and to transact such other business as it may deem proper.

**Annual Report.**—It shall make an annual report to the House of Delegates, the same to be submitted through its chairman.

(Item 120.)

#### Section 2.—Duties of District Councilor

Each District Councilor shall be organizer, peace-maker and censor for his district.

**Visitation of Component County Societies; and Report thereon.**—He shall visit each county in his district at least once a year; for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession, and to keep in touch with the activities of and to aid in the betterment of the component societies of his district; and in writing shall make an annual report of this work, and of the condition of the profession of each county in his district to the Council, by it to be transmitted to the House of Delegates.

**Traveling Expenses.**—The necessary traveling expenses incurred by each Councilor and officers in the line of duties herein imposed, either in visitation of component county societies, attending Council or Executive Committee meetings and so on, may be allowed on proper itemized statement, according to such limitations as the Council may deem wise to adopt; but this shall not be construed to include any expense in attending the Annual Session of the Association.

(Item 121.)

#### Section 3.—Mail Ballot

The Chairman of the Council at any time may direct the Secretary to submit any urgent matter or question to the Council by mail ballot, the question or proposition being prepared through conference of the Secretary with the Chairman of the Council and the Chairman of the executive committee; and the vote of two-thirds of the members upon such question by mail or telegraph shall be binding upon the Council.

(Item 122.)

#### Section 4.—Registry

The Secretary-Treasurer in writing, shall request each Councilor to register his address where he de-

sires all notices to be sent to him which might go forward by mail or telegram.

(Item 123.)

#### Section 5.—Order of Business

At meetings of the Council, business shall be transacted as the Council may determine from time to time by resolution.

**Order of Business for First Meeting of the House of Delegates.**—The Council shall provide and fix the order of business of the first meeting of the House of Delegates.

(Item 124.)

#### Section 6.—Powers and Duties

The Council shall be vested with the powers and perform the duties provided in the Constitution.

**Annual Report to the House of Delegates.**—The Council shall consider and approve or modify its annual report as prepared by its Chairman, to the House of Delegates at the regular annual session thereof; and shall therein report to the House of Delegates all material and important matters transacted by the Council or Executive Committee during the preceding year and all material and important matters affecting the Association or its members; and with said report it shall submit a budget of expenditures for the ensuing year.

(Item 125.)

#### Section 7.—Review of Acts and Proceedings of Executive Committee

At each meeting of the Council it shall examine, review, and approve, reject or modify, upon all recommendations and proceedings of the Executive Committee had and taken subsequent to the last meeting of the Council.

(Item 126.)

#### Section 8.—Powers of Council in Relation to House of Delegates

The Council shall be the executive body of the House of Delegates and between sessions shall exercise the power conferred on the House of Delegates by the Constitution and By-Laws.

**Council as a Board of Censors.**—The Council shall be the Board of Censors of the Association. It shall consider all questions involving the right and standing of members, whether in relation to other members, to the component societies, or to this or to the national Association.

All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion.

It shall hear and decide all questions of discipline affecting the conduct of members or component societies, on which an appeal is taken from the decision of an individual Councilor. Its decision in all cases, including questions regarding membership in this Association, shall be final, unless the House of Delegates by a majority vote of the members thereof present and acting, requests that the matter be presented to the House by the Council, for such recommendation and action as the House, after due investigation and deliberation, may deem proper to make.

**Council Chairman.**—The Council shall elect a chairman and a vice-chairman at the annual organization meeting of the Council.

The chairman and vice-chairman shall hold office until the next organization meeting, or until their respective successors are elected.

(Item 127.)

#### Section 9.—Issuance and Revocation of Charters

Charters shall be issued to county societies only on approval of the Council, and shall be signed by the President and Secretary of this Association.

Upon the recommendation of the Council, after due hearing, the House of Delegates may revoke the



charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

(Item 128.)

#### Section 10.—Adjacent Counties as One County Society

In sparsely settled sections the Council shall have authority to organize the physicians of two or more counties into a society, to be suitably designated, if deemed desirable, by hyphenated county names, so as to distinguish it from a district society; and such a society, when organized and chartered, shall be entitled to all rights and privileges provided for a component society until such counties shall be organized and chartered separately.

(Item 129.)

#### Section 11.—Council Supervision of Publications; Appointment of Editor or Editors

The Council shall provide for and superintend the issuance of all publications of the Association, including proceedings, transactions and memoirs, and shall have authority to appoint an editor or editors and such assistants as it deems necessary.

(Item 130.)

#### Section 12.—Accounting and Audits

It shall prescribe the methods of accounting and shall audit all accounts of this Association.

**Budget.**—The Council shall adopt an annual budget providing for the necessary expenses of the Association.

**Compilation of Annual Financial Report.**—Through the Chairman and Secretary-Treasurer, it shall compile an annual report which shall be available to the House of Delegates, which shall specify the character and cost of the publications of the Association, the amount and character of all of its property, and shall provide full information concerning the management of all financial affairs of the Association which the Council is charged to administer.

(Item 131.)

#### Section 13.—Committee of Arrangements for Annual Meeting

The Chairman of the Council, subject to the approval of the Council, shall appoint at least six months before the annual meeting a Committee on Arrangements for the annual meeting, one member thereof being designated as the general chairman. This committee shall consist of five members, at least three of whom shall be members of the component society of the county in which the annual meeting is to be held.

The Secretary-Treasurer of the Association shall be ex-officio, also a member of this committee.

This committee shall have charge of all local arrangements other than those otherwise provided for.

The terms of office of members of this committee shall expire when the succeeding committee is appointed.

As the local Committee of Arrangements this committee shall provide suitable meeting places and shall have general charge of all local arrangements. The committee shall have power to appoint local advisory members and sub-committees to aid it in its work.

**Commercial Exhibit.**—The Council shall decide what portion of the income from Commercial Exhibit or other convention services shall go to the local Committee of Arrangements. The location and rules for the commercial exhibit and other accessory

annual session activities shall be subject to the approval of the Council.

**Local Convention Expenses.**—The Council shall decide what share of the local expenses shall be borne by the Association.

(Item 132.)

#### Section 14.—Council Appointments in Vacancies

The Council shall, by appointment, fill any vacancy in office not otherwise provided for which may occur during the interval between annual meetings of the House of Delegates; the appointee shall serve until his successor has been elected and has qualified.

(Item 133.)

#### Section 15.—Executives or Field Secretaries or Representatives

The Council may employ one or more Executive or Field Secretaries or Representatives, who need not be physicians nor members of the Association. The duties of such a representative or representatives, if appointed, shall be determined by the Council, by resolution.

(Item 134.)

#### Section 16.—Council to Fix Salaries

The salaries of all employees of the Association shall be fixed by the Council.

(Item 135.)

#### Section 17.—Headquarters

The Council shall provide such headquarters for the Association as may be required to conduct its business properly.

(Item 136.)

#### Section 18.—Legal Counsel

The Council shall have the right to appoint one or more legal advisors, giving each such title as may be deemed proper. It shall decide the amount of retainer and other fees, and by resolution shall indicate what authority, duties and work shall be deputized to each. The Council shall appoint such licensed attorneys-at-law in California at its annual organization meeting.

The Council shall have the right to request the attendance of the Counsel of the Association at any meetings at which it might desire his presence and advice, and at such meetings he shall call the attention of the Council to matters in which the legal bearings may be of importance, and shall give such other opinions in special matters as may be requested of him by the Council.

The General Counsel shall present in writing as promptly as the same may be properly prepared, such legal opinions as may be requested by the House of Delegates, the Council or the Executive Committee.

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#### CHAPTER IX.—COMMITTEES

(Item 137.)

#### Section 1.—Standing Committees

The standing committees of this Association shall be as follows:

- (a) An Executive Committee.
- (b) A Committee on Scientific Work.
- (c) A Committee on Public Policy.
- (d) A Committee on Publications.
- (e) A Committee on Medical Defense.
- (f) A Committee on Medical Education and Hospitals.
- (g) A Committee on Medical Economics.
- (h) A Committee on Health and Public Instruction.

- (i) A Committee on Associated and Affiliated Societies.
- (j) A Committee on Necrology.
- (k) A Committee on Membership and Organization.
- (l) A Committee on Extension Lectures.

(Item 138.)

#### Section 2.—Standing Committees; How Elected; Terms of Office

Unless otherwise provided in these By-Laws, each of these committees shall consist of three members, each of whom shall serve for a term of three years. One member of each of these committees shall be nominated and elected annually by the Council, by and with the consent of the House of Delegates, provided that at the Annual Session at which this Constitution is adopted, one member of each of the foregoing committees shall be appointed for a term of three years, one member for two years and one member for one year, their successors to be elected in proper and regular calendar sequence thereafter.

(Item 139.)

#### Section 3.—Advisory Groups to Standing Committees

To aid it in its work, each committee, if it so desires, (with the exception of the Executive Committee), shall have the power to appoint an Advisory Group to its committee, consisting of from two to ten members. Such advisory members, if present at a regular committee meeting, shall not have the right to vote.

(Item 140.)

#### Section 4.—Officers of Standing Committees

Each of these committees shall, each year, at its first meeting or official consultation, following the Annual Session, elect its own chairman and secretary.

(Item 141.)

#### Section 5.—Secretary-Treasurer's Notice to Standing Committees

The Secretary-Treasurer of the Association, within one month after the Annual Session, shall write the Committee Chairman of the preceding year, to call a meeting for organization and consideration of any business. The Secretary shall also send a copy of this letter to each of the other members of the committee.

(Item 142.)

#### Section 6.—Annual Reports of Standing Committees

Prior to the annual meeting, each of these committees shall submit a written report to the council on the work of the committee during the preceding year, the same to be printed in the Pre-convention Bulletin as otherwise provided.

(Item 143.)

#### Section 7.—Executive Committee

The Executive Committee shall consist of the President, the President-Elect, the Secretary-Treasurer, the Speaker of the House of Delegates, the Chairman of the Council, the Editor and the Chairman of the Auditing Committee.

**Officers.**—This committee shall elect its own chairman. The Secretary-Treasurer of the Association shall be its secretary.

**Time and Place of Meetings.**—This committee shall meet at the Association office, unless otherwise agreed upon; on call of its chairman, or upon written request of two of its members.

**Scope and Duties.**—It shall consider all matters brought to its attention by the Secretary-Treasurer or others of its members, and shall make recom-

mendations for action thereon to the Council, as elsewhere provided.

**Legal Counsel.**—The Executive Committee shall have the right to request the attendance of the Counsel of the Association at any meeting at which it might desire his presence and advice.

(Item 144.)

#### Section 8.—Committee on Scientific Program

The Committee on Scientific Program shall consist of the Secretary-Treasurer, the secretaries of the sections on general surgery and general medicine and three other members to be elected by the Council, each of these three members to serve three years, one member being elected each year. The Secretary-Treasurer shall be chairman.

This Committee shall determine the character and scope of the scientific proceedings of the Association for each session, subject to the instructions of the Council.

At least thirty days previous to each Annual Session it shall prepare and issue a program announcing the order in which papers and discussions shall be presented.

**Joint Session With Section Secretaries.**—This Committee shall have one joint session with the section secretaries, at a time and place to be designated by the Chairman of the Committee, at least forty-five days prior to the annual session, to the end of more efficiently co-ordinating the various activities of the Association at its annual session. The chairman of the local committee of arrangements shall also be invited to attend this meeting.

(Item 145.)

#### Section 9.—Committee on Public Policy

The Committee on Public Policy shall consist of three elected members, and ex-officio, the President and the President-Elect.

A joint meeting of this committee and an Auxiliary Committee, as hereinafter provided, shall be held annually, as may be ordered on the call of the chairman. The chairman of the Committee, and in his absence, the President, shall act as chairman at the joint meetings of this central state group and of auxiliary county groups.

**County Auxiliary Committees on Public Policy.**—The Council of each county society shall appoint or elect three of its members as members of its auxiliary Committee on Public Policy, designating one as chairman, and the county society secretary shall send promptly the names and addresses to the Secretary of this Association.

**Work of Auxiliary County Committees.**—The Committee on Public Policy of this Association, with the sanction of the Council, shall formulate the duties of these auxiliary committees and supply each member with a copy of its suggestions and instructions. The auxiliary committeemen shall be accountable to their county societies and to the Council for prompt response and continued cooperation with the Committee on Public Policy of this Association.

**Functions of the Committee.**—The Committee on Public Policy and its auxiliary county groups shall represent the Association in securing and enforcing legislation in the interest of public health and of scientific medicine, subject, however, to the approval of the Council.

(Item 146.)

#### Section 10.—Committee on Publication

The Committee on Publication shall consist of three elected members, and ex-officio editor or editors, and the Secretary-Treasurer.

**Functions of the Committee on Publications.**—The Committee, subject to the instructions and approval of the Council, shall have authority to arrange for the publication and distribution of all publications of the Association; and shall keep in con-



sultation with the editors and secretaries to the end that the scientific work and organization efforts of the Association, may be presented to the members of the Association in best possible manner.

(Item 147.)

#### Section 11.—Committee on Medical Defense

The Committee on Medical Defense, subject to the approval of the Council, shall prepare plans and establish rules, for the protection of the legal rights of members of this Association against whom suits for alleged malpractice have been brought.

It may assist in the defense of any member sued for alleged malpractice if the member was in good standing and had complied with the rules of the committee when the service on account of which suit was brought was rendered.

(Item 148.)

#### Section 12.—Committee on Medical Education and Medical Institutions

The Committee on Medical Education and Institutions shall serve in this state for the Council on Medical Education of the American Medical Association.

It shall keep in touch with the problems pertaining to medical education and to medical and other institutions of training for medicine and the healing art.

(Item 149.)

#### Section 13.—Committee on Hospitals

The Committee on Hospitals shall serve in this state for the Council on Hospitals of the American Medical Association.

It shall keep in touch with the problems arising in the fields of work of all types of hospitals, giving special attention to those activities that are or tend to become a menace to the best interests of scientific medicine and of the profession and its members.

(Item 150.)

#### Section 14.—Committee on Medical Economics

The Committee on Medical Economics shall investigate matters affecting the economic status of physicians.

(Item 151.)

#### Section 15.—Committee on Health and Public Instruction

The Committee on Health and Public Instruction shall keep in touch with and investigate matters concerned with the public health of the state and shall carry on such activities in the field of public health, and aid in the dissemination of information in relation thereto, as the Council may direct.

(Item 152.)

#### Section 16.—Committee on Associated Societies and Technical Groups

The Committee on Associated and Technical Groups, subject to the instructions of the Council, shall endeavor to create proper liaisons between this Association and other state and national medical organizations, as well as with the organizations of related professions, such as dentistry; it shall also endeavor to bring about a proper understanding with non-medical organizations or groups of technicians and others whose work has a bearing on or is related to the practice of medicine.

(Item 153.)

#### Section 17.—Committee on Necrology

The Committee on Necrology shall compile and prepare for the publications of the society suitable statements concerning deceased members. The editors and the Association Secretary shall be additional members of this committee, ex-officio.

(Item 154.)

#### Section 18.—Committee on Membership and Organization

The Committee on Membership and Organization, of which the Secretary-Treasurer shall be an additional member ex-officio, shall each year make a survey of the number of licensed physicians in the state and shall seek to have the component county societies bring into membership all eligible physicians in their respective counties; and to that end in the Spring of each year, and perhaps oftener, shall send to each county society a letter, a copy being sent also to each county society president and secretary, urging each county society to take steps to have a county committee on membership appointed for the purpose of making a survey and bringing into affiliation all eligible physicians.

(Item 155.)

#### Section 19.—Committee on Industrial Practice

The Committee on Industrial Practice shall keep in touch with matters and problems peculiarly connected with industrial practice.

(Item 156.)

#### Section 20.—Committee on Extension Lectures

The Committee on Extension Lectures, of which the Secretary-Treasurer shall be an additional ex-officio member, shall have charge of the work of conferring with members of the Association, who are willing to give lectures or papers or clinics, which would be available to county societies desiring to have such presentations. From time to time, the committee shall print in the official publication the names and addresses of such available speakers, and the titles of their subjects, and once or more each year, in a letter to the county societies shall call the attention of the county officers to the availability of such lecture and clinic material which could be used to advantage in formulating county society programs.

(Item 157.)

#### Section 21.—Publication of Committee Reports in Pre-Convention Bulletin

Reports of the standing and special committees shall be published in a pre-convention bulletin or in the official journal of the month preceding the date of the annual session of the Association. Such reports must be in the hands of the Secretary-Treasurer at least sixty days in advance of the annual session.

If a committee fails to send in its report in proper time, the name of the committee and of its members shall be printed as above indicated, with a statement that the committee failed to send in its report, and the Council, subject to the approval of the House of Delegates, shall be empowered under such conditions to make such changes in the personnel of the committee as in its judgment may be deemed best.

(Item 158.)

#### Section 22.—Report Procedure for All Committees

Regular and special committees of the Association may make investigations and surveys on authorization of the Council or House of Delegates, but all recommendations and reports of all committees, (unless expressly otherwise provided in the constitution or by-laws), must be submitted only to the Council or House of Delegates. Other than as herein stated no committee is authorized to act for or represent this Association.

(Item 159.)

#### Section 23.—Additional Committees

The Council and the House of Delegates are authorized and empowered to appoint special committees, with special instructions as to work to be

undertaken, whenever it is deemed necessary or desirable by either body.

(Item 160.)

#### Section 24.—Scientific Sections; How Divided

The scientific work of the Association shall be divided into twelve scientific sections as follows: General Medicine; General Surgery; Pediatrics; Eye; Ear, Nose and Throat; Urology; Anesthesiology; Obstetrics and Gynecology; Radiology; Industrial Medicine and Surgery; Pathology and Bacteriology; Dermatology and Syphilology; and Neuropsychiatry.

**Additional Scientific Sections; How Authorized.**—Additional scientific sections or regrouping of scope of existing scientific sections can through proper resolution be authorized by the House of Delegates.

**Rules of Procedure of Scientific Sections.**—Each scientific section shall adopt rules of procedure for its own better government and work, and in suitable books, its officers shall be responsible for the proper keeping of records of scientific and business meetings.

**Officers of Sections.**—The members of each section shall at the regular annual session of the Association elect a chairman and a secretary of the section to serve for the term of one year.

Each of the sections shall present a scientific program at the annual session of the Association, and its officers shall be responsible for the proper preparation of the same, and for the proper cooperation with other scientific sections during the annual meeting. \* \* \*

#### CHAPTER X.—FUNDS, PROPERTY AND ASSESSMENTS

(Item 161.)

##### Section 1.—Annual Assessment

An annual per capita assessment of dues upon all active members, and an annual per capita assessment of fifty per cent thereof upon all associate members, shall be recommended by the Council to the House of Delegates. The authority to fix the amount of the said assessments, shall be vested in the House of Delegates.

(Item 162.)

##### Section 2.—Payment of Dues and Delinquency

Said annual assessment or dues shall be payable and delinquent and a member shall forfeit his membership for non-payment thereof as herein elsewhere in these by-laws provided.

(Item 163.)

##### Section 3.—Bequests, Legacies, Donations and Gifts

The Association may also receive through the Council or any corporation which may be formed pursuant to Article XII of the constitution, such bequests, legacies, donations and gifts as the Council shall deem it proper and suitable to accept.

(Item 164.)

##### Section 4.—Funds and Moneys—Deposit and Withdrawal

All funds and moneys of the Association by whomsoever received shall be promptly forwarded to the Secretary-Treasurer of the Association and deposited by him in a depository of the Association.

No demands or claims against the Association shall be paid and no funds or moneys of the Association withdrawn from any depository thereof except upon written voucher approved by the signature of at least two members of the Auditing Committee on check or draft signed by any two of the following: The Chairman of the Council; the Vice-Chairman of the Council (only in the absence of the Chairman); Chairman of the Auditing Committee; the Secretary-Treasurer.

(Item 165.)

##### Section 5.—Surplus Funds from Journal and Publications

On authorization therefor by the House of Delegates, any surplus funds arising from the conduct and operation of the Journal or other publications of the Association may be applied and used by the Council for any purposes deemed suitable by it or may be delivered and paid over to any corporation which may be formed pursuant to Article XII of the constitution.

(Item 166.)

##### Section 6.—Property and Funds May Be Transferred to Corporation

The Council in its annual report to the House of Delegates may recommend the conveyance, transfer, delivery and payment over to any corporation which may be formed pursuant to Article XII of the constitution, of real or personal property and any surplus funds of the Association, and the House of Delegates concurring, such conveyances, transfers, deliveries and payments shall be authorized and made. \* \* \*

#### CHAPTER XI.—FINANCES

(Item 167.)

##### Section 1.—Annual Dues and Assessments

The annual dues and special assessments shall be determined by the House of Delegates, and shall be levied on the members of the Association, as otherwise herein provided.

**Dues; When Payable.**—They shall be payable on or before January 1, of the year for which they are levied.

**County Secretaries to Collect Dues.**—The Secretary of each component society shall cause to be collected and shall forward to the offices of the Association the dues and assessments for its members, together with such data as shall be required for a record of its officers and membership.

**Suspension of Membership Because of Non-Payment of Dues.**—Any member whose name has not been reported for enrollment and whose dues for the current year have not been remitted to the Secretary of this Association on or before April 1, shall stand suspended until his name is properly reported and his dues for the current year properly remitted.

(Item 168.)

##### Section 2.—Record of Fact of Payment of Dues

The record of payment of dues and assessments on file in the offices of the Association shall be final as to the fact of payment by a member and as to his right to participate in the business and proceedings of the Association and of the House of Delegates.

(Item 169.)

##### Section 3.—County Societies to Make Reports at Specific Times

Any county society which fails to make the reports required, at least thirty days before the Annual Session of the State Association, shall be held suspended, and none of its members or delegates shall be permitted to participate in any of the proceedings of the Association or of the House of Delegates, except on a two-thirds vote of the House of Delegates.

(Item 170.)

##### Section 4.—Dues Payments in Relation to Malpractice Defense

For the purposes of medical defense, in case such medical defense is being maintained at any particular time as one of the activities of the Association, a member shall be deemed in arrears from and during the period extending from April 1 of the current year until his dues and assessments shall have been received at the offices of the Association, through the secretary of the component society of



which he is a member. A member in arrears shall not be entitled to the privileges of any medical defense maintained by this Association.

(Item 171.)

**Section 5.—Depositaries; Funds Deposited by Secretary-Treasurer**

The depositary or depositaries of the Association shall be a bank or trust company or companies properly authorized by the Council. All funds received for the Association by any officer or agent thereof shall be promptly paid to the Secretary-Treasurer and by him deposited with the depositary.

A depositary shall pay out the money of the Association only upon check or draft signed as otherwise herein provided, countersigned by the chairman or other designated member of the Executive Committee. The Secretary shall issue such checks or drafts only upon vouchers approved by the Auditing Committee as elsewhere provided.

**Revolving Fund.**—A revolving fund in such amount as may from time to time be fixed by the Council shall be left with the Secretary-Treasurer from which fund immediate cash demands may be paid.

\* \* \*

CHAPTER XII.—COUNTY SOCIETIES

(Item 172.)

**Section 1.—Constitutions and By-Laws of Component County Societies**

Each county society of this Association, which has adopted principles of organization not in conflict with the Constitution and By-Laws, rulings and procedures of this Association, and which is otherwise acceptable, on application, shall receive a charter from and become a component part of this Association.

**Amendments to County Society Constitutions and By-Laws.**—Such charters shall provide that the constitution and by-laws and procedures of the component member society shall not be amended in any way which might conflict with the Constitution and By-Laws of the American Medical Association and of this Association as originally drawn or as modified by competent authority, except by and with the written approval of the Council of this Association, upon instructions through a two-thirds vote of the House of Delegates.

(Item 173.)

**Section 2.—County Society Charters; How Issued**

Charters shall be issued only by the House of Delegates after approval by the Council, and shall be signed by the President and Secretary of this Association.

**County Society Charters; How Revoked.**—The House of Delegates, upon recommendation of the Council, after due hearing, shall have authority to revoke the charter of any county society whose actions are in conflict with the letter or spirit of the Constitution and By-Laws, policies and procedures of this Association.

(Item 174.)

**Section 3.—Only One County Society in Any County**

Only one medical society shall be chartered in any one county, provided that the physicians in a portion of any one county who can show adequate reasons satisfactory to the Council therefor, may be authorized to join some other county society as elsewhere provided for in this Constitution and By-Laws.

(Item 175.)

**Section 4.—County Societies to Judge Qualifications of Applicants for Membership**

Each county society shall judge the qualifications of its members. However, as such societies are integral parts of this Association and form the basis of membership in the American Medical Association,

it is necessary that the qualifications meet the minimum requirements of the State and National organizations. These minimum requirements are that to be eligible for election as an active member the applicant must hold the degree of Doctor of Medicine from an institution of learning accredited at the time of conferring such degree by the American Medical Association, and must be licensed to practice medicine and surgery in the State of California.

A member must not practice or claim to practice or lend his support, cooperation, or in any other way endorse any exclusive or sectarian system of medicine. He shall be honorable and ethical in his conduct and shall subscribe to the principles of medical ethics of the American Medical Association, and shall recognize the Councils of his component county society and of this Association as the proper authority to interpret any doubtful points in ethics.

Every applicant for membership in a county society shall fill out and sign in duplicate the application blanks provided by the society, which prescribe the necessary qualifications for membership. One copy of each such application shall be promptly forwarded to the office of this Association.

(Item 176.)

**Section 5.—Appeals of Aggrieved Members From Judgment of County Societies; Procedures**

Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in censuring, suspending or expelling him, shall have the right to appeal to the Council of this Association within the period of two months next succeeding the date of such action of his county society, which appeal shall be in writing and filed within the said period in the office of the Secretary of this Association. Within a period of two months after a decision by the Council thereon, any party interested may appeal to the House of Delegates, whose decision in any case shall be final. Such appeal shall in like manner, be in writing and filed within said period of two months at the office of the Secretary-Treasurer of this Association.

(Item 177.)

**Section 6.—Procedure for Council in Hearing Appeals**

In hearing appeals, the Council shall review all questions involved and may appoint committees from its own number or any notary public to act as referee or referees for the purpose of taking evidence upon any point or question which shall thereafter be submitted to the full membership of the Council, and it shall use any lawful means in its judgment as will best and most fairly present all the facts involved. In every case of an appeal, the Council as a board and as individual councilors, shall exert their good efforts at conciliation and compromise, prior to any hearing being held upon the appeal.

(Item 178.)

**Section 7.—Transfer Cards; How Issued**

When a member in good standing in a county society moves to another county or other jurisdiction in this State, he shall on request, be given a transfer card, without cost, but he must assume such financial obligations as shall be deemed proper by the county society to which he is transferred, and to which he makes application for membership by transfer.

(Item 179.)

**Section 8.—Membership in County Society Other Than County of Residence**

A physician living on or near a county line may hold his membership in that county most convenient for him to attend, provided that the consent of the

society of the county in which such physician may reside be first obtained, and also the consent of the society which he desires to join.

(Item 180.)

**Section 9.—County Society Rosters of Members and of Licensed Physicians in Counties**

The Secretary of each county society shall keep a roster of its members and of the non-affiliated registered physicians of the county, on which shall be shown the full name, address, school and date of graduation, date of license to practice in this State and such other information as may be deemed necessary. In keeping such roster the county society's secretary shall note and at once notify the State Secretary of any changes in the personnel of the profession, by death, by resignation, or by removal to or from the county, and in making his annual report he shall endeavor to account for every physician who has lived in the county during the year. The secretary of each county society shall make a monthly report to the Secretary of this Association upon such forms and including such subjects, as the Council may authorize.

(Item 181.)

**Section 10.—Assessment and Delegate Reports By County Society Secretaries**

The secretary of each county society shall forward its assessments, together with its roster of officers and members, list of delegates and alternates and list of non-affiliated physicians of the county to the Secretary of this Association before the first day of March of each year.

Only those delegates and alternates who are duly elected and certified to the Association Secretary before March 1 may represent their society in the House of Delegates, unless upon request by a county society, the House by a two-thirds vote of members present and acting, permits delegates and alternates or other county member present, whose names were not properly forwarded, to be seated.

A delegate who does not attend an annual session at which he is a delegate, and who in writing, through the secretary of his county society does not submit to the Credentials Committee a valid excuse for such absence, shall automatically lose his office as delegate therewith, and shall not be eligible as a delegate from his county society until two years shall have passed.

The Association Secretary in January of each year, by letter to the president and secretary of each county society, shall remind each county society of the provisions of this section; and with the aid of the Credentials Committee and assistants, shall keep a proper record of absentees and other data.

(Item 182.)

**Section 11.—Penalty for County Societies Not Paying Assessments**

Any county society which fails to pay its assessments or make the report required on or before March 1 shall be held as suspended, and none of its members, delegates or alternates may participate in any of the business or proceedings of the Association or of the House of Delegates during the annual session of that year, nor thereafter, until all requirements for membership have been first met.

(Item 183.)

**Section 12.—Procedure in Loss of Membership**

No member of a county society shall be deprived of his membership unless by his own act, except by a two-thirds affirmative vote of all the regular membership in good standing of the county society to which he belongs present and voting at a regular meeting thereof, or by a two-thirds vote of its coun-

cil or board of officers, and only after at least six weeks' written notice personally delivered to the member, has been served upon him, fully stating the charges against him, and only after such member shall have been given full opportunity to be heard in his own defense at such meeting; but a member shall be dropped automatically on the revocation of his license to practice by the duly constituted and legal authority of the State of California vested at the time with the power to revoke such license.

(Item 184.)

**Section 13.—Forfeiture of Rights and Interests Through Resignation**

When a member resigns his membership in a county society, he shall thereby forfeit all right and title to any share in the privileges and property of the California Medical Association.

\* \* \*

**CHAPTER XIII.—MISCELLANEOUS**

(Item 185.)

**Section 1.—Ethics**

The principles of medical ethics as promulgated from time to time by the American Medical Association are and shall be the principles of medical ethics of this Association and the component societies thereof, and shall regulate and govern all members thereof.

Interpretation of points in ethics about which any controversy may exist shall be submitted to the Council of this Association and its interpretation and ruling thereon shall be final, unless over-ruled by a two-thirds vote of the House of Delegates, as otherwise provided herein.

(Item 186.)

**Section 2.—Rules of Order**

In the absence of any provision in the Constitution and By-Laws all meetings of the Association, of the House of Delegates, of the Council, and of committees shall be governed by parliamentary usages contained in the current edition of Roberts' Rules of Order.

\* \* \*

**CHAPTER XIV.—AMENDMENTS**

(Item 187.)

**Section 1.—Amendments—Vote and Procedure**

These by-laws may be amended by the House of Delegates at any session thereof by the affirmative vote of at least one-half of the qualified members thereof present and acting; provided, that any proposed amendment has been properly submitted in writing to the House of Delegates at least twenty-four hours previous to being voted upon.

(Item 188.)

**Section 2.—Repeal of All Previous Constitutions and By-Laws**

Upon the adoption of these By-Laws, all previous By-Laws are thereby repealed.

**CONSTITUTION**

**Draft II. Proposed Revision of Constitution and By-Laws of the California Medical Association, Formulated by the General Counsel After Study by a Group of Councilors**

**Article I**

**NAME**

Section 1. Name.—The name of this Association is the "California Medical Association."

**Article II**

**PURPOSES**

Section 1. Purposes.—The purposes of this Association are to promote the science and art of medicine, the protection of the public health, and the betterment of the medical profession; to unite in this Association the qualified ethical doctors of medicine



of California and to form with similar organizations in other states and territories of the United States, the American Medical Association.

### Article III

#### COMPONENT SOCIETIES

Section 1. Component Societies.—Component societies shall be the county medical societies of the several counties of the state of California, whose constitutions, by-laws, procedure, rulings and activities conform to and are not in conflict with the Constitution, By-Laws, procedure, rulings and activities of this Association and which hold unrevoked charters from this Association. Where good cause exists a component society may comprise the membership of two or more adjoining counties.

### Article IV

#### MEMBERSHIP

Section 1. The members of the Association shall consist of the following:

(a) Active Members, Qualifications and Rights.—Active members shall comprise all of the active members of all the component societies. No person shall be eligible for election to active membership in a component society unless he shall hold the degree of Doctor of Medicine issued to him by an institution of learning accredited at the time of conferring such degree by the American Medical Association nor unless he holds an unrevoked license to practice medicine and surgery in the state of California. An active member shall have the right of suffrage and all other rights and privileges of the Association.

(b) Associate Members.—Associate members shall be elected by the Council upon the recommendation of the component society of the county in which the associate member resides from those doctors of medicine engaged in teaching or research work or holding positions in Federal service or otherwise, who are not licensed to practice medicine and surgery in the state of California and hence are ineligible to active membership. Associate members shall have all the rights and privileges of active members except the right to vote or hold office. Dues of associate members shall be one-half of the dues of active members, and their dues to their component society (if an associate member is admitted to membership therein) shall be fixed by such component society. All existing affiliate members qualified hereunder shall become associate members.

(c) Retired Members.—Retired members of the California Medical Association may be elected by the Council on the recommendation of the component society of the county of which the retired member is a member from those active members who cease the practice of medicine for any reason, and who shall have been active members of the Association for ten years or more immediately prior thereto. Retired members shall pay such dues as the Council shall fix and shall be entitled to receive the monthly publication of the Association at such rate as the Council may determine.

(d) Honorary Members.—The House of Delegates on motion by the Council may elect as an honorary member any person distinguished for his service or attainments as a doctor of medicine or in the field of public health or for research or other scientific work contributing to medicine. Honorary members shall not pay dues.

(e) Affiliate Members.—Affiliate members shall be those persons heretofore elected as associate members who by education, training, and experience, in the sciences are so closely allied to medicine as to make their association with this Association desirable in the opinion of the Council. Affiliate members shall pay such annual dues and enjoy such rights and privileges as the Council shall from time to time prescribe.

### Article V

#### HOUSE OF DELEGATES

Section 1. Composition of House of Delegates.—The House of Delegates shall consist of (1) delegates elected by the component societies, (2) the councilors,

and (3) ex-officio the president, president-elect and vice-president of the Association, and the speaker of the House of Delegates.

Sec. 2. Powers of House of Delegates.—The House of Delegates shall be the legislative body of the Association. It shall issue component society charters to county medical societies which it deems and finds eligible therefor, and may, after notice to any component society and due and proper hearing, revoke any such charter for cause. It shall form and group the component societies into councilor districts at least once every ten years. Such districting shall be based on medical population as evidenced by active membership in the various component societies and geographical area. It shall at the regular annual session thereof elect the president-elect, the vice-president, and the speaker of the House of Delegates, and in accordance with the Constitution and By-Laws of the American Medical Association, it shall elect the delegates of the Association to the House of Delegates of the American Medical Association. The House of Delegates shall provide for the division of the scientific work of this Association into appropriate sections.

Sec. 3. Sessions Other Than Executive Shall Be Open.—All sessions of the House of Delegates, other than executive sessions thereof, shall be open to all members of the Association.

Sec. 4. Basis of Representation of Component Societies.—Each component society shall be entitled to be represented by one delegate and one corresponding alternate and also by one delegate and one corresponding alternate for every fifty members thereof, and also by one delegate and one corresponding alternate for each fraction of fifty members thereof as of the first day of October of the year in which the election of delegates is had, or if such election be held prior to October, as of the first day of October of the year immediately preceding such election of delegates.

Sec. 5. Alternate Delegates.—An alternate delegate eligible to serve if any delegate who represents a component society is disqualified or fails to attend any meeting, shall be elected for each delegate.

Sec. 6. Term of Delegates and Alternates.—Qualifications.—Delegates and alternates shall be elected by the several component societies respectively for a term of two years, commencing with the first day of the regular annual session of the House of Delegates held after the election thereof and ending with the adjournment of the next regular session of the House of Delegates thereafter. One-half of the delegates and alternates representing each county society as near as may be shall be elected each year. Every delegate and alternate must be an active member of the Association and of his component society in good standing and have been such at least two years immediately preceding his election.

### Article VI

#### SESSIONS AND MEETINGS

Section 1. Regular Annual Sessions of Association—Place and Notice.—The Association shall hold a regular session annually consisting of general meetings and section meetings for all members. Such meetings shall be held at such time and place as the Council shall fix and notice thereof and of the time and place of each general meeting shall be published in the monthly publication of this Association in at least two regular issues thereof preceding such regular sessions.

Sec. 2. Subjects of General and Section Meetings.—The general meetings and section meetings shall be devoted to addresses and papers relating to the purposes of the Association and to discussion and consideration thereof.

Sec. 3. Special Sessions of Association—Notice.—Special sessions of the Association may be called by a two-thirds vote of the House of Delegates or the Council and, if so called, shall be held at such time and place as the Council shall fix. The Council shall cause written notice thereof stating the object of the meeting, to be sent by United States mail, postage



fully prepaid, to each active member of the Association, addressed to him at his office or place of residence as shown by the records of the secretary's office, at least fifteen days prior to the date of meeting.

Sec. 4. Regular Annual Sessions of House of Delegates—Place and Notice.—The House of Delegates shall hold a regular session annually consisting of at least two meetings, the second whereof shall be convened at least twenty-four hours subsequent to the convening of the first meeting. The regular annual session of the House of Delegates shall be held at the same place as the regular annual session of the Association, and the Council shall fix the number of and times for the meetings thereof. The same notice shall be given of such sessions and the meetings thereof as that prescribed for the regular annual sessions of the Association.

Sec. 5. Special Sessions of House of Delegates—Place and Notice.—Special sessions of the House of Delegates may be called at any time by a two-thirds vote of the members of the Council at any regular or special meeting thereof or by written call stating the object of the meeting, filed with the secretary in the office of the Association and signed by one-third of the members of the House of Delegates. Upon the filing of such call with the secretary, the Council shall within thirty days thereafter fix the time and place for the holding of such special meeting and cause written notice thereof stating the object of the meeting to be sent by United States mail, postage fully prepaid, to each member of the House of Delegates addressed to him at his office or place of residence as shown by the records of the secretary's office, at least fifteen days prior to the date of meeting.

## Article VII

### OFFICERS

Section 1. Officers of the Association.—The officers of the Association shall be a president, a vice-president, a president-elect, a speaker of the House of Delegates, a chairman of the Council, a vice-chairman thereof, a secretary, and editor, and six councilors-at-large and nine district councilors as hereinafter provided.

Sec. 2. Term of Office—President-Elect, Vice-President, Speaker—Election by House of Delegates.—The House of Delegates at the regular annual session thereof shall elect the president-elect to serve until the adjournment of the final meeting of the House of Delegates at its next regular annual session. At the conclusion of the final meeting of the House of Delegates at the next regular annual session, the president-elect shall assume the office of president, and serve as such for the term of one year thereafter. The House of Delegates shall at the regular annual session thereof elect a vice-president and a speaker of the House of Delegates, each to serve for the term of one year. The president, president-elect, vice-president, and speaker of the House of Delegates shall be ex-officio members of the Council.

Sec. 3. Chairman of Council, Vice-Chairman, Secretary, Editor—Election and Appointment by Council.—The Council at the first meeting thereof held after the adjournment of the last meeting of the House of Delegates at the regular annual session thereof shall elect a chairman and a vice-chairman and shall appoint the secretary and the editor each to serve for the term of one year.

Sec. 4. Terms of Office—Vice-President, Speaker, Councilors.—The term of office of the vice-president and speaker of the House of Delegates (which terms are herein generally stated to be one year) and the term of office of the councilors (which terms are herein generally stated to be three years, shall commence immediately upon the adjournment of the last meeting of the regular annual session of the House of Delegates at which such officers are elected and shall continue up to the adjournment of the corresponding meeting of the year in which the term of office ends.

Sec. 5. Councilor Districts—District Councilors, Councilors-at-Large—Terms.—The component societies shall be grouped into nine councilor districts.

One councilor shall be elected at the meeting of the House of Delegates at which the councilors-at-large are elected, from each councilor district by the delegates elected by the several component county societies forming such councilor districts, and six councilors shall be elected at large. Not more than three councilors shall be elected from any one councilor district. All councilors shall serve for a term of three years. As the terms of the councilors now in office expire, elections to fill the vacancies thus created shall be had and for such terms to be fixed by the House of Delegates that as soon as may be, the terms of one-third of the councilors selected from councilor districts and one-third of the councilors elected at large shall expire annually.

Sec. 6. Appointment of Secretary and Editor—Not to Engage in Practice of Medicine—Emergency.—The Council shall appoint the secretary and the editor as hereinafter provided. Neither the secretary nor the editor shall engage in the practice of medicine while acting as secretary or editor respectively; provided that if the Council by a two-thirds vote of all of its members declares that an emergency exists in the matter of securing a competent or desirable secretary or editor, then a secretary or editor engaged in active practice may be selected for a period of not exceeding one year.

Sec. 7. Secretary and Editor must Be Doctors of Medicine but Need not Be Members.—No person shall be eligible to the office of secretary or editor who does not hold the degree of Doctor of Medicine, but membership in this Association shall not be a necessary qualification for the office of either editor or secretary.

Sec. 8. Qualification for Office.—No person shall be eligible for any office other than secretary or editor who has not been an active member of the Association in good standing for two years next preceding his election, and no person shall hold more than one office except that the same person may be appointed to serve as secretary and editor. Provided that if the Council by a two-thirds vote of all its members declares that an emergency exists, one person may hold more than one office in addition to or other than those of secretary and editor, for a term not exceeding one year. No person shall be eligible to the office of speaker who is not a member of the House of Delegates by which he is elected.

Sec. 9. Officer to Hold Office Until Successor Is Elected.—Every officer shall hold office until his successor is elected and installed in office.

## Article VIII

### COUNCIL

Section 1. The Council—Organization—Quorum.—The Council shall consist of the councilors and ex-officio the president, the president-elect, the vice-president, and the speaker of the House of Delegates. At the first meeting thereof held after the adjournment of the last meeting of the House of Delegates at the regular annual session thereof, the Council shall organize by the election of one of the councilors as chairman of the Council who shall serve as such up to the adjournment of the last meeting of the next succeeding regular annual session of the House of Delegates, and also a vice-chairman who, in the absence of the chairman, shall perform the duties of the chairman. Nine councilors shall constitute a quorum.

Sec. 2. Appointment of Auditing Committee, Secretary, Editor, General Counsel, Assistant General Counsel.—The Council at the first meeting thereof held after the adjournment of the last meeting of the annual session of the House of Delegates, shall appoint an Auditing Committee of three of its members and the chairman thereof to serve for the term of one year. The Council at said meeting shall appoint for one year or for a lesser period and fix the compensation of the following officers: A secretary, who shall be the chief administrative officer of the Council and of the Association; an editor or editors of all publications of the Association; a general counsel, and an assistant general counsel. The Council may employ other agents and representatives on an annual basis



or for lesser periods, provide their duties and fix their compensations. The term of one year herein provided shall commence immediately on appointment and continue up to the first meeting of the Council held after the adjournment of the last meeting of the next regular session of the House of Delegates. In the event that a vacancy shall occur in the office of councilor, the Council may appoint a councilor to serve until an election is held at the next regular meeting of the House of Delegates to fill such unexpired term.

Sec. 3. Powers of Council—Budget.—Subject only to provisions of this Constitution and the By-Laws and all resolutions and enactments of the House of Delegates, the Council shall be vested with full and complete power and authority to manage, control, use, invest, reinvest, lease, make contracts in respect of, and concerning, convey, give, grant, transfer, or otherwise dispose of all property and assets of whatever kind or nature owned by the Association, and shall also be vested with full and complete power and authority to do and perform all acts and to transact all business for and on behalf of the Association and to manage and conduct all the work and activities of the Association in carrying out the purposes thereof. Through its chairman, it shall submit a budget for the ensuing year to the House of Delegates, and it shall make a report of its proceedings to the House of Delegates at the regular annual session thereof.

Sec. 4. Powers and Duties to Executive Committee.—The Council shall have the authority to delegate such of its powers and duties to the Executive Committee as it shall from time to time determine.

Sec. 5. Meetings and Other Duties.—The Council shall hold such meetings and perform such other duties as are provided by the By-Laws or as the House of Delegates may by resolution prescribe.

### Article IX

#### EXECUTIVE COMMITTEE

Section 1. Executive Committee—Composition—Quorum—Powers and Duties—Record of Proceedings and Reports to Council.—The Executive Committee shall consist of the president, the president-elect, the speaker of the House of Delegates, the chairman of the Council, the vice-chairman of the Council, the chairman of the Auditing Committee, the secretary, and the editor. The Executive Committee shall elect its own chairman and the secretary shall act as the secretary thereof. Four members shall constitute a quorum. The Executive Committee shall aid and assist the officers and the Council in the transaction of the business of the Association in the intervals between the meeting of the Council. It shall prepare and submit a draft of the financial budget to the Council at least ——— days prior to the annual meeting of the House of Delegates. It shall have such powers and duties as the Council shall from time to time determine. It shall keep a record of its proceedings and report them to the Council and all of its proceedings shall be authorized by or subject to the approval of the Council.

### Article X

#### FUNDS, PROPERTY AND ASSESSMENTS

Section 1. Annual Assessment of Dues—Other Sources of Funds.—Funds shall be raised by an equal annual per capita assessment of dues upon the active members and by an equal annual per capita assessment thereof upon the associate members. The amount of the assessments shall be fixed by the House of Delegates. Funds may also be raised by voluntary contributions, through bequests, legacies, devises and gifts, and from the Association's publications and in any other manner approved by the House of Delegates. All resolutions providing for appropriations shall be referred to the Council and all appropriations approved by the Council shall be included in the annual budget.

Sec. 2. All Funds and Moneys to Be Paid to Secretary and Deposited with Depositary.—All funds and moneys received for the Association by any officer or agent thereof shall be promptly paid to the secre-

tary and by him deposited with a depositary selected as such by the Council. All depositaries selected by the Council shall be banks or trust companies duly licensed to transact business as such in the state of California.

Sec. 3. Only Active Members in Good Standing Have Any Interest in Association Property.—No person other than an active member in good standing shall have any interest in the property of the Association, and the interest of any active member therein shall cease when he ceases to be a member of the Association. If any active member shall resign or otherwise cease to be an active member of the Association, all of his interest in and to all property of the Association shall cease and such cessation of membership shall operate as a release and assignment to the Association of all the right, title and interest of such member in and to all of the property of the Association.

### Article XI

#### REFERENDUM

Section 1. Submission Through House of Delegates or Council.—The House of Delegates at any meeting thereof at any regular or special session may by a two-thirds vote of the members present and acting or the Council at any meeting thereof may by a two-thirds vote of all of its members, submit any question, matter or proposition to all the active members of the Association by mail and a majority of the votes cast by mail by the active members of the Association shall be final and bind and govern the Association upon the question, matter or proposition so submitted to the membership.

Sec. 2. Procedure on Vote.—The Council shall prescribe, fix, and determine the form of the question, matter or proposition so referred to the members and the time within which such vote shall be cast. All votes must be in writing and mailed or delivered to the secretary's office. The canvass thereof shall be under the direction of the Council.

Sec. 3. Time Within Which Referendum May Be Taken.—The action of the House of Delegates shall be final and binding upon all members of the Association unless a referendum as herein provided is voted by the House of Delegates at the same meeting thereof at which the action was taken or the vote or resolution was had or adopted, or unless the Council by a two-thirds vote of all its members, shall within the period of thirty days after the adjournment of such meeting of the House of Delegates vote to hold a referendum on such action, vote or resolution of the House of Delegates.

### Article XII

#### INCORPORATION

Section 1. Procedure to Form Corporation—Kind—Transfer of Property.—To aid in carrying out the object of the Association, the House of Delegates at any meeting of any regular or special session thereof may by a two-thirds vote of the members thereof present and acting, authorize, empower and direct the Council to cause the formation and organization of a nonprofit corporation under the laws of the state of California, without capital stock, with such incorporators, name, purposes, objects, principal place of business, term, number of directors and directors to serve for the first year and until their successors are elected, and with such provisions regarding the voting power and property rights and interests of the members of the corporation and such further provisions in the Articles of Incorporation thereof, and with By-Laws, and composed of such members representing this Association as the Council shall prescribe, fix and determine. The House of Delegates may at its option in connection with the granting and giving of such authority, power and direction to the Council, prescribe, fix, and determine any or all such matters pertaining to the said corporation, its Articles of Incorporation, and any provision thereof, By-Laws and membership, and its action thereof shall bind the Council; and the House of Delegates at any session



of any regular or special meeting thereof may by a two-thirds vote of the members thereof present and acting, authorize, empower and direct the Council to grant, assign, transfer, convey and deliver to the said corporation upon the formation thereof without any consideration therefor, any property, real or personal, of the Association, which authorization, power and direction may be given prior or subsequent to the formation and organization of said corporation.

### Article XIII

#### MONTHLY PUBLICATION

Section 1. Scientific Journal.—The Association shall publish a scientific journal in the interest of the Association and its members devoted to the advancement of medical thought and progress and the dissemination of scientific information among the medical profession.

### Article XIV

#### OFFICE

Section 1. Main Office at San Francisco.—The main office of the Association shall be fixed and located at the city and county of San Francisco, state of California; all books and records of the Association shall be kept at such office and it shall be the office of the secretary and the editor.

### Article XV

#### SEAL

Section 1. Seal—Imprint.—The Association shall have an Association seal consisting of a circle having on the circumference the words and figures "California Medical Association, Eureka, 1865," with such further emblems, figures and words as the Council shall prescribe.

### Article XVI

#### AMENDMENTS

Section 1. Procedure to Amend Constitution.—Any member of the House of Delegates at any session or any regular annual meeting thereof may present an amendment or amendments to any article or articles or any section or sections of any article of this Constitution. Such proposed amendment or amendments must be in writing and shall be filed with the secretary and shall thereafter be published at least twice in separate issues of the monthly publication of this Association. At the first regular session of the House of Delegates thereafter held, such proposed amendment or amendments shall be submitted to the House of Delegates and if two-thirds of the delegates present and voting, vote in favor thereof, the same shall be adopted. The House of Delegates, may, however, by majority vote continue consideration of and vote upon any proposed amendment or amendments, to the next succeeding annual session, and in such event the same publication thereof shall be made as above provided. All amendments to the Constitution shall take effect and be in force immediately upon the adoption thereof.

### Article XVII

#### REPEAL OF ALL PROVISIONS OF PRESENT CONSTITUTION

Section 1. Repeal of Present Constitution.—All articles and all sections of all articles of the existing Constitution are hereby repealed.

### BY-LAWS

#### Chapter I

##### COMPONENT SOCIETIES

Section 1. Component Society Charters.—The charter of each component society shall provide that all the provisions of the Constitution and By-Laws of this Association in force at the time of the issuance of such charter together with all amendments to either thereof thereafter adopted shall, insofar as the same are applicable, be an integral part of the Constitution and By-Laws of the component society to which the charter is issued, and that the terms and provisions thereof shall control and govern such component society, the officers and members thereof, and that the Constitution and By-Laws of the component society shall not be amended in any way to conflict

or be inconsistent with the Constitution and By-Laws of this Association. Each charter shall be signed by the president and secretary of this Association.

Sec. 2. Revocation of Component Society Charters.—The charter of any component society may be revoked by the House of Delegates if, after the filing with the secretary of the Association of a written petition or protest signed either by the chairman of the Council pursuant to resolution adopted by the Council by the affirmative vote of two-thirds of all the members thereof, or by ——— active members of the Association at large and after due notice of hearing and hearing thereof, it determines that the provisions of the Constitution or By-Laws of the Association or of the charter of such society have been breached by such society or that such society has committed acts or conducted itself in conflict with the Constitution, By-Laws, or purposes of this Association.

Sec. 3. Only One Component Society in Any County.—Only one component society shall be chartered by this Association in any one county of the state of California, provided, however, that a component society may for good cause authorize the formation and existence of branch societies for scientific investigation and work only, the members of which must be members of such component society.

Sec. 4. Component Society Comprising two or More Adjoining Counties.—A component society may be chartered to comprise the eligible doctors of medicine resident in two or more adjoining counties in such cases where the interest of the membership will be best served thereby.

Sec. 5. Component Society Sole Judge of Qualifications for Membership.—Each component society shall be the exclusive judge of the qualifications for membership therein, provided, however, that eligibility for admission as an active member shall be based upon the minimum requirements of the Constitution of this Association therefor.

### Chapter II

#### MEMBERSHIP

Section 1. Active Members—Status Of.—All active members of component societies shall by virtue of such status be members of this Association upon certification by the secretary of the component society of such membership and upon payment of all dues and assessments of this Association.

Sec. 2. Dues When Payable and Delinquent.—The dues of all members for the fiscal year, *viz.*, the calendar year, shall be payable in advance on January 1, and be delinquent April 1, after which \$1 shall be added thereto. Any member whose dues are not paid on or before July 1, together with the sum of \$1, if paid after April 1, shall cease to be a member of the Association. No dues payable to any component society by any member thereof shall be accepted by such component society, unless all unpaid dues to this Association are paid therewith. The dues of any active, associate or retired member who becomes a member after July 1 in any year, shall be one-half of the regular annual dues for a member of that class for the remainder of such year.

Sec. 3. Component Society Secretaries to Furnish Lists of Members and Remit Dues.—It shall be the duty of the secretary of each component society to furnish the secretary of this Association on the first day of January of each year a list containing the names and addresses of all active members of the component society and the names and addresses of all associate and retired members of this Association residing in the county or counties comprising the component society and to remit therewith the dues and assessments due and payable to this Association for the ensuing year payable by each of said members; and thereafter on the first of each month to furnish the secretary of the Association the names of any members admitted during the current month with their addresses and the dues and assessments therefor, and with any other changes in membership or addresses.



Sec. 4. Component Society Secretaries to Furnish Data on Applications for Membership.—The secretary of each component society shall notify the secretary of this Association in writing as soon as possible of each application for membership in such component society, of the name, address, and all other particulars regarding the applicant known to the secretary of such component society.

Sec. 5. Membership Where no Component Society or in Society Most Convenient.—Any doctor of medicine residing in a county of the state in which there is no component society may make application and if qualified and elected be admitted to the component society most convenient to the county in which he resides. Any doctor of medicine living on or near a county line may apply for and be elected to membership in that component society most convenient for him to attend, provided that the consent of the component society of the county in which the doctor resides be first obtained.

Sec. 6. Membership on Changes of Residence—Six Months' Residence Necessary for Qualification.—A member who changes his residence from the county in which he holds membership in a component society to another county of the state in which there is a component society, may retain his membership in the component society of which he is a member, provided he applies for membership in the component society of the county to which he has removed within six months from the date of his change of residence, and is not elected as a member thereof. If elected to membership in the component society of the county to which he has removed his residence, his membership in the society of his former residence shall cease. No doctor shall be eligible for election in a component society who has not resided continuously in the county at least six months immediately prior thereto.

Sec. 7. Expulsion and Loss of License.—Any member expelled from his component society, or any active member whose license to practice medicine and surgery in the state of California is revoked shall thereupon cease to be a member of this Association. Expulsion shall be deemed to occur when the same becomes final under the Constitution and By-Laws of this Association. Revocation of license shall be deemed to occur when the same becomes final in law.

Sec. 8. Appeal to Council and to House of Delegates.—Any physician who may feel aggrieved by the action of his component society in censuring, suspending or expelling him, shall have the right to appeal to the Council of this Association within the period of three months next succeeding the date of such action of his component society, which appeal shall be in writing and filed within the said period in the office of the secretary of this Association. Within the period of three months after a decision by the Council thereon, any party interested may appeal to the House of Delegates, whose decision in any case shall be final. Such appeal shall, in like manner, be in writing and filed within said period of three months at the office of the secretary of this Association. Appeals shall be heard only after reasonable notice in writing to the appellant member and the president and secretary of the component society of the time and place of the hearing of the appeal.

Sec. 9. Hearing Appeals.—In hearing appeals the Council or the House of Delegates, as the case may be, shall review all questions involved and may appoint committees or any notary public to act as referee for the purpose of taking evidence upon any point or question, which shall thereafter be submitted to the Council or to the House of Delegates as the case may be, and the body before whom the appeal is pending shall use any lawful means in its judgment as will best and most fairly present all the facts involved. In every case of appeal the Council as a board and as individual councilors, shall exert all proper efforts at conciliation and compromise prior to any hearing being held upon the appeal by the Council or the House of Delegates.

### Chapter III

#### HOUSE OF DELEGATES

Section 1. Component Society Secretaries to Furnish Lists of Delegates and Alternates.—The secretary of each component society shall immediately upon the election thereof and in no event later than fifteen days prior to the annual session of the House of Delegates forward to the secretary of this Association the names and addresses of the delegates and alternates elected by the component society to the House of Delegates and certify to the secretary of this Association the date of such election and the term for which each delegate and alternate is elected. Failure to forward said names and addresses within said time to the secretary shall disqualify said delegates and alternates for said session, unless the Council, for good cause shown, shall excuse such default.

Sec. 2. Delegates or Alternates Absent from Session Disqualified.—Any delegate or alternate absent from an annual session to which he has been duly elected, who has not notified the secretary of his component society at least fifteen days before the convening of said session of his inability to attend, shall be ineligible for reelection as a delegate or alternate for the next two years succeeding the expiration of his term of office.

Sec. 3. Rights and Duties of Alternate Delegates.—An alternate delegate shall take the place and perform the duties of any delegate of the delegation from such component society who is absent from any meeting, provided, however, that an alternate shall have no right to sit as a delegate if there is no vacancy in the number of delegates to which the component society is entitled in attendance at the meeting.

Sec. 4. Quorum.—Thirty-five delegates shall constitute a quorum of the House of Delegates.

Sec. 5. Powers and Duties—Memorials and Resolutions.—The House of Delegates shall be vested with the powers and perform the duties provided in the Constitution. The House of Delegates alone shall have authority to approve any memorial or resolution of whatever character issued in the name of the Association.

Sec. 6. Special Committees.—The House of Delegates is authorized to appoint committees for special purposes at any time from among the members of the Association at large, but such committees shall report only to the House of Delegates, and may upon request of the House of Delegates participate in the discussion of such reports.

Sec. 7. Approval of Annual Budget.—The House of Delegates shall approve an annual budget of expenditures to be submitted to it by the Council.

### Chapter IV

#### SESSIONS AND MEETINGS

Section 1. Registry of Members.—Each member of the association in attendance at the annual session shall register with the secretary, and no member shall take part at the annual meetings of the session unless he has registered and holds a membership card.

Sec. 2. General Meetings Open.—Addresses of President and President-elect.—The general meetings of the Association shall be open to all registered members and guests. The annual addresses of the president and president-elect shall be delivered at the general meetings of the Association.

Sec. 3. All Meetings of Same Session in Same Locality.—The general meeting of the Association, the meetings of the House of Delegates, and the section meetings at any session shall be held in the state of California at the same locality and as nearly as possible in the same buildings or adjoining buildings.

Sec. 4. Papers Property of Association—No Publication Thereof.—All papers read before the general meetings of the Association and before the scientific sections and all papers which have been awarded prizes or mention shall be the property of the Association, and each paper after reading shall be deposited with the secretary. Authors of papers read before



the general meetings or scientific sections of the Association shall not publish their papers or any portion thereof except with the consent of the Association.

Sec. 5. House of Delegates Meetings, No New Business at Final Meeting, Election.—At each annual session the House of Delegates shall hold at least two meetings, the second of which shall convene at least twenty-four hours after the convening of the first. No new business of any kind by resolution or otherwise, except by unanimous consent and after previous general statement of the nature thereof, shall be introduced at the final meeting of the House of Delegates at any session. The election of all officers elected by the House of Delegates shall be by ballot (unless a ballot be waived by unanimous consent) and shall be had at the last meeting thereof at any annual session. Special sessions shall consist of such number of meetings as the House of Delegates shall determine.

Sec. 6. Regular Council Meetings.—The Council shall meet on the day preceding the annual session of the Association and daily during such session, and shall also hold at least three other regular meetings during the year, at least one of which shall be held in the southern part of the state. The time and place of each of such meetings shall be fixed by the Council at a previous meeting and at least ten days' notice by mail shall be given each councilor by the secretary of the time and place of such regular meetings.

Sec. 7. Special Council Meetings.—Special meetings of the Council may be called by the chairman at any time and he shall call such meeting upon the written request of at least three councilors, filed with the secretary stating the object of the proposed meeting. Written notice of the time, place and object of such meeting shall be given by the secretary to all members of the Council at least seven days prior to such meeting. All special meetings of the Council shall be held at the office of the Association unless another place is selected by unanimous consent of all members of the Council.

Sec. 8. Executive Committee Meetings.—The Executive Committee shall meet on call of the president, or the chairman of the Council or the secretary, on forty-eight hours notice by mail or telegraph, if the meeting is to be held at the office of the Association, otherwise on at least three days notice of the meeting.

Sec. 9. Robert's Rules of Order.—In the absence of any provision in the Constitution and By-Laws all meetings of the Association, House of Delegates, Council and committees shall be governed by parliamentary usages contained in the current edition of Robert's Rules of Order.

## Chapter V

### POWERS AND DUTIES OF OFFICERS

Section 1. President.—The president shall preside at all general and special meetings of the Association; he shall appoint all committees not otherwise provided for; he shall deliver an annual address at the annual meeting of the Association and perform such other duties not inconsistent with the Constitution and By-Laws as the Council or House of Delegates may direct. He shall be ex-officio a member of the Council.

Sec. 2. Vice-president.—The vice-president shall in the absence or inability of the president to act, be vested with all the power and perform all the duties of the president. He shall be ex-officio a member of the Council.

Sec. 3. President-elect.—The president-elect shall be ex-officio a member of the Council.

Sec. 4. Speaker of the House of Delegates.—The speaker of the House of Delegates shall preside over all meetings of the House of Delegates and shall, with the approval of the president and chairman of the Council, appoint all committees of the House of Delegates not otherwise provided for, and he shall perform such other duties as custom and parliamentary usage may require. He shall be ex-officio a member of the Council.

Sec. 5. Chairman of the Council.—The chairman of the Council shall preside at all meetings of the Council. The chairman of the Council shall sign all contracts and checks or drafts for the withdrawal of funds of the Association. He shall deliver the annual report of the Council to the House of Delegates.

Sec. 6. Vice-chairman of the Council.—The vice-chairman of the Council in the absence or inability of the chairman to act, shall be vested with all the powers and shall perform all the duties of the chairman.

Sec. 7. Secretary.—The secretary shall attend all meetings of the Association, the House of Delegates, the Council and the Executive Committee and shall keep the minutes of their respective proceedings. He shall be ex-officio secretary of the Council and of the Executive Committee. The secretary's powers and duties shall include: The prompt deposit of all funds and moneys of the Association in any designated depository thereof; countersigning all checks and drafts on the depository of the Association; countersigning all contracts and agreements to which the Association is a party; keeping a register of all component societies, their respective officers, and of all members of the Association with their addresses; giving of all notices required by the Constitution and By-Laws or by order of the Council, or by the Executive Committee, or by law; employing such assistants as may be authorized by the Council; one of whom, upon authorization of such employment by the Council shall be termed the "field secretary." The field secretary shall be a doctor of medicine, acting under the direction of the secretary, whose duties shall particularly concern the economic and scientific problems and welfare of the several component societies and the members thereof; all assistants of the secretary shall serve at the pleasure of the secretary; providing for the registration of delegates, alternates and members at the sessions of the Association and House of Delegates; coöperating with the secretaries and officers of the component societies in all matters affecting the association and the component societies; the supervising and the proper keeping of all of the records and accounts of the Association acting as custodian of all its books, papers and records; compiling an annual directory of all members of the Association; examining, rejecting and approving, under the control of the Council and Executive Committee all applications for advertisements in the publications of the Association. The secretary shall perform such other duties as the House of Delegates or Council may direct and shall be the chief administering officer of the Association. He shall make an annual report to the House of Delegates.

Sec. 8. Editor.—The editor shall compile, edit and have charge of the journal of the Association and such other publications as may be authorized for or on behalf of the Association.

Sec. 9. General Counsel and Assistant General Counsel.—The general counsel and assistant general counsel shall be attorneys at law licensed to practice and practicing their profession in the state of California. The general counsel shall be the chief consulting officer of the Association in all legal matters and subject to the approval and direction of the Council and Executive Committee shall have general control of all matters of legal import concerning the Association. The assistant general counsel shall assist the general counsel in matters of legal import to the Association and its members.

## Chapter VI

### COUNCIL

Section 1. Mail Ballot.—The chairman of the Council at any time may direct the secretary to submit any urgent matter or question to the Council by mail ballot, and the vote of two-thirds of the members upon such question by mail or telegraph shall be binding upon the Council.

Sec. 2. Registry.—Each councilor shall register with the secretary his address where he desires all



notices to be sent to him which are sent by mail or telegram.

Sec. 3. Order of Business.—At meetings of the Council business shall be transacted as the Council may determine from time to time by resolution. The Council shall provide and fix the order of business of the sessions and meetings of the House of Delegates. All elections of officers elected by the Council shall be by ballot unless waived by unanimous consent.

Sec. 4. Powers and Duties—Annual Report to House of Delegates—Budget.—The Council shall be vested with the powers and perform the duties provided in the constitution. The Council shall approve the annual report of the chairman to the House of Delegates at the regular annual session thereof, and shall therein report to the House of Delegates all material and important matters transacted by the Council or Executive Committee during the preceding year and all material and important matters affecting the Association or its members; with said report it shall submit a budget of expenditures for the ensuing year.

Sec. 5. Review of Acts and Proceedings of Executive Committee.—At each meeting of the Council it shall examine, review, and act upon all acts and proceedings of the Executive Committee had and taken subsequent to its last meeting.

## Chapter VII

### COMMITTEES AND SCIENTIFIC SECTIONS

Section 1. Regular Committees.—The regular committees of this Association shall be as follows:

- (a) Auditing Committee.
- (b) Committee on Arrangements.
- (c) Committee on Scientific Work.
- (d) Reference Committee.
- (e) Committee on Industrial Practice.
- (f) Committee on Technical Specialties.
- (g) Committee on Medical Education.
- (h) Committee on Hospitals.
- (i) Committee on Public Policy and Legislation.

Sec. 2. Auditing Committee.—In accordance with the provisions of the Constitution an Auditing Committee of three members of the Council and the chairman thereof shall be elected annually by the Council. The Auditing Committee shall make a report annually to the House of Delegates setting forth in detail the status of the property, funds and finances of the Association.

Sec. 3. Committee on Arrangements.—The Committee on Arrangements shall have charge of all arrangements other than those relating to the scientific program necessary for the annual session of the Association and the annual session of the House of Delegates. It shall consist of five active members of the Association at large, at least three of whom shall be members of the component society of the county in which the said annual sessions are to be held. The president shall appoint the committee and the chairman thereof at least six months prior to the convening of the annual sessions for which the committee is to function. The term of office of the members of the committee shall be one year.

Sec. 4. Committee on Scientific Work.—The Committee on Scientific Work shall consist of the secretary of the Association, the secretary of the scientific section of general medicine, the secretary of the scientific section of surgery and four members of the Association who shall be elected by the House of Delegates for a term of four years, one member thereof to be elected each year. Said term shall commence at the adjournment of the last meeting of the session of the House of Delegates at which the member was elected, and continue until the adjournment of the corresponding meeting of the fourth annual session of the House of Delegates thereafter. The secretary of the Association shall be the chairman thereof. The committee shall determine the character and scope of the scientific proceedings of the Association and prepare and arrange for the presentation

of scientific program at the general meetings and section meetings of the annual sessions.

Sec. 5. Reference Committee.—The Reference Committee shall consist of five members of the House of Delegates and the members and chairman thereof shall be appointed by the President, chairman of the Council and speaker of the House of Delegates at the first meeting of the House of Delegates at the annual session thereof. The addresses of the president, president-elect and invited speakers at the general session of the Association, the report of the Council to the House of Delegates, the budget and all proposed amendments to the Constitution or By-Laws and all resolutions and matters introduced or brought before the House of Delegates shall be referred to the Reference Committee unless such reference is dispensed with by unanimous consent of all members present. At a subsequent meeting of the House of Delegates at the same session the committee shall present a written report dealing with and making recommendations on all matters submitted to it. The report of the committee shall be read by the chairman first as a whole and the House of Delegates shall then act and vote upon the report section by section.

Sec. 6. Committee on Industrial Practice.—The Committee on Industrial Practice shall consist of fifteen active members of the Association at large specializing or interested in industrial practice selected generally so as to give representation to all parts of the state. The committee shall keep in touch with and report to the Council from time to time on matters and problems peculiarly connected with industrial practice. The Council shall appoint the committee and the chairman and two vice-chairmen thereof. The committee shall serve at the pleasure of the Council.

Sec. 7. Committee on Technical Specialties.—The Committee on Technical Specialties shall consist of five active members of the Association at large. The committee shall keep in touch with and report to the Council from time to time on matters and problems affecting and concerning the technical specialties connected with the practice of medicine such as medical social service workers, physiotherapists, x-ray technicians, laboratory technicians and similar auxiliary medical workers or persons. The Council shall appoint the committee and the chairman thereof and the committee shall serve at the pleasure of the Council.

Sec. 8. Committee on Medical Education.—The Committee on Medical Education shall consist of three active members of the Association at large and shall serve in this state for the Council on Medical Education of the American Medical Association, and shall have referred to it all questions pertaining to medical education. The Council shall appoint the committee and the chairman thereof and the committee shall serve at the pleasure of the Council.

Sec. 9. Committee on Hospitals.—The Committee on Hospitals shall consist of ..... active members of the Association at large and shall serve in this state for the Council on Hospitals of the American Medical Association, and shall have referred to it all questions pertaining to hospitals. The Council shall appoint the committee and the chairman thereof, and the committee shall serve at the pleasure of the Council.

Sec. 10. Committee on Public Policy and Legislation.—The Committee on Public Policy and Legislation shall consist of ..... active members of the Association at large and shall investigate all matters of public policy and legislation affecting medical progress and the members of the medical profession. The Council shall appoint the committee and the chairman thereof and the committee shall serve at the pleasure of the Council.

Sec. 11. Regular and Special Committees.—Regular and special committees of the Association may make investigations and surveys on authorization of the Council or House of Delegates, but all recommendations and reports of all committees (unless expressly otherwise provided in the Constitution



or By-Laws), must be submitted only to the Council or House of Delegates. Other than as herein stated no committee is authorized to act for or represent this Association.

Sec. 12. Additional Committees.—The Council and the House of Delegates are authorized and empowered to appoint additional committees, whenever it is deemed necessary or desirable by either body.

Sec. 13. Scientific Sections.—The scientific work of the Association shall be divided into twelve scientific sections as follows: General Medicine; General Surgery; Pediatrics; Eye, Ear, Nose and Throat; Urology; Anesthesiology; Obstetrics and Gynecology; Radiology; Industrial Medicine and Surgery; Pathology and Bacteriology; Dermatology and Syphilology; and Neuropsychiatry. The members of each section shall at the regular annual session of the Association elect a chairman and a secretary of the section to serve for the term of one year. Each of the sections shall present a scientific program at the annual session of the Association.

### Chapter VIII

#### FUNDS, PROPERTY, AND ASSESSMENTS

Section 1. Annual Assessment.—An annual per capita assessment of dues upon all active members, and an annual per capita assessment of 50 per cent thereof upon all associate members, shall be recommended by the Council to the House of Delegates, but the House of Delegates shall be authorized to fix the amount of the said assessments.

Sec. 2. Payment of Dues and Delinquency.—Said annual assessment or dues shall be payable and delinquent and a member shall forfeit his membership for nonpayment thereof as herein elsewhere in these By-Laws provided.

Sec. 3. Bequests, Legacies, Donations, and Gifts.—The Association may also receive through the Council or any corporation which may be formed pursuant to Article XII of the Constitution, such bequests, legacies, donations, and gifts as the Council shall deem it proper and suitable to accept.

Sec. 4. Funds and Moneys—Deposit and Withdrawal.—All funds and moneys of the Association by whomsoever received shall be paid promptly forthwith to the secretary of the Association and deposited by him in a depository of the Association. No demands or claims against the Association shall be paid and no funds or moneys of the Association withdrawn from any depository thereof except upon written voucher approved by the signature of at least two members of the Auditing Committee on check or draft signed by any two of the following: the chairman of the Council, the vice-chairman, chairman of the Auditing Committee, and the secretary.

Sec. 5. Surplus Funds from Journal and Publications.—Any surplus funds arising from the conduct and operation of the journal or other publications of the Association may be applied and used by the Council for any purposes deemed suitable by it or may be delivered and paid over to any corporation which may be formed pursuant to Article XII of the Constitution on authorization therefor by the House of Delegates.

Sec. 6. Property and Funds May Be Transferred to Corporation.—The Council in its annual report to the House of Delegates may recommend the conveyance, transfer, delivery and payment over to any corporation which may be formed pursuant to Article XII of the Constitution of real or personal property and any surplus funds of the Association, and the House of Delegates shall authorize such transfer.

### Chapter IX

#### MISCELLANEOUS

Section 1. Ethics.—The principles of medical ethics as promulgated from time to time by the American Medical Association are and shall be the principles of medical ethics of this Association and the component societies thereof, and shall regulate and govern all members. Interpretation of points in ethics about which any controversy may exist shall be submitted

to the Council, and its interpretation and ruling thereon shall be final.

### Chapter X

#### AMENDMENTS

Section 1. Amendments—Vote and Procedure.—These By-Laws may be amended by the House of Delegates at any session thereof by the affirmative vote of two-thirds of the members thereof present and acting; provided, that any proposed amendment has been submitted in writing and laid upon the table for twenty-four hours previous to being voted upon.

### Chapter XI

Section 1. These By-Laws shall take effect upon adoption thereof and all existing By-Laws are hereby repealed.

### ENABLING ACT

The so-called "Enabling Act" is printed below. This Enabling Act is a special provision or amendment to the present Constitution which if adopted at the next annual session would permit the House of Delegates to consider and modify or otherwise change any amendments whatsoever, without necessitating a one year's notice.

#### ENABLING ACT

Amend Article XII of the Constitution relating to Amendments by striking out the existing article and substituting in lieu thereof, the following:

The House of Delegates at any annual meeting including the meeting at which this amendment is adopted may amend any article of this constitution by a two-thirds vote of the delegates present and acting; provided that any amendment to the constitution is submitted in writing and laid on the table for twenty-four hours previous to being considered and acted upon.

### COMPONENT COUNTY SOCIETIES

#### FRESNO COUNTY

The June meeting of the Fresno County Medical Society was held after a seven o'clock dinner at the Hotel Californian, Fresno. The meeting was particularly well attended.

Prof. Robert L. Richards of the Department of Psychiatry, University of California, spoke on "Mental Growth and Ills of Childhood."

Doctor Richards defined "mental" as the functioning of the brain cortex—a part of the body. The brain cortex is composed of cells having transmitting processes that develop and transmit reserve force. There are nine thousand million cells and any functioning means many cells acting at one time and forming what is called a pattern of action. Localization of function is only possible as to motor and visual function. Two-thirds of the cortex is silent to electric stimulation. But removal of one portion (visual area) means loss of a learned habit and the animal can be restrained.

Hence we are dealing with a functioning where the whole cortex must be considered. Animal experimentation shows the following laws of cortical functioning:

1. Nerve force tends to follow previous paths of action. Repetition means habit.

2. Any brain action shows more power than cells involved and short process cells are at least reinforcing cells. Power is drained into the path of action.

3. Man's cortex (as against apes and mammals) tends to retain patterns of action more than twenty-five minutes—the limit of rats with the trial and error method. In man this is developed at three years—a memory function.

4. Brain cortex dominates and is superior to lower levels of nerve structure.

5. Man's cortex compares and uses prior experiences or cortical actions and makes a choice. Apes do not do this.

6. In man behavior or action patterns tend to grow and develop a personality.

We are thus led into a functioning that may be called psychological. The basic facts are the unlearned



trends which divide into three main groups of instincts, viz.: Ego, Sex and Group trends. They are characterized by:

1. The deep effect on emotion accompanying their action.

2. This is so complete that it is called "all or none" action.

3. They are present without effort of learning.

The interaction of environment or education on these produces a final product called personality. There are distinct characteristic stages of growth (baby, child, adolescent and adult) which must be approached differently and have different dangers and accidents.

The place where modification can be most expected is the stage of the plastic child—especially the pre-school child. Our objective should be:

1. To train the baby to the consciousness of family, school and larger groups and help him to acquire the power of adapting himself to these groups.

2. To correct thumb sucking which means faulty mouth functioning. Regulating the length of time the baby nurses is important.

3. To control ego explosions—tantrums.

4. To guard against the occurrence of conditioned fears.

5. To overcome bad habits as soon as noticed.

6. To provide for the stage of sexual development.

7. To see that no undue notice is taken of the child's refusal of food.

8. To correct jealousy which is an evident danger.

9. To instill the "mine and thine" idea. This has an important bearing on stealing and lying.

Means for meeting these problems will prevent subsequent crippling, delinquency and inadequacy. This means coöperation and efforts of parents, schools, churches, courts and social agencies in guidance clinics for especially severe cases. In this way the child may have his full chance which we owe him.

This interesting paper was discussed by Dr. C. P. H. Kjaerbye, Dr. J. M. Frawley and Dr. G. A. Hare.

JOHN M. FRAWLEY, *Assistant Secretary*.



LOS ANGELES COUNTY \*

SOME THOUGHTS ON OUR ASSOCIATION MEMBERSHIP

"The Los Angeles County Medical Association has a membership of more than sixteen hundred, but there are at least a thousand physicians and surgeons in the county who are eligible to membership, who could and should be associated with the organization, who are not so associated. This is a low estimate.

Why are there so many outside who do not feel the need of affiliating in medical organization? Various excuses are offered, most commonly the reason being that the dues and initiation fee are too high. But are they? Let us see. By raising the initiation fee to \$100, which is now made payable *over a period of six years*, this association has been enabled to accumulate property having a potential value of at least a million dollars. Divide sixteen hundred into one million and what is a membership in real money worth—something like 600 per cent on money, the most of which has only been pledged. How many of your clubs have done anything like this? And how many of our clubs have gone bankrupt or at least assessed us heavily to keep out of bankruptcy?

And about dues! Of the \$22, \$10 goes to the state association, and for this you receive one of the most valuable journals published in America. You have the opportunity of attending annual meetings, of which for excellence of scientific work in its many sections, there are none better, except the great national meeting of the American Medical Association, of which you automatically become a member on this fee. Only those who have a contact

with the working of the state organization can appreciate what the officers and committees do in so many ways to promote and protect the interests of scientific medicine—the doctor, whether or not he is a member benefits. In a future statement, we shall try to enumerate some of the activities which have come under our observation. This service is functioning every day in the year. It never ceases. Yet 50 per cent of the medical men and women of this state let another 50 per cent pay for that service—bear their burden.

Now about the \$12 that stays at home. If you are a member of a branch—say at Long Beach or Pasadena, or any other branch—(take your *Bulletin* and look up branches), you get a refund of \$5. If you live in Los Angeles city you do not get that refund, for that \$5 goes to maintain your telephone exchange, which is constantly at your service. Possibly you do not care to use it. Possibly you could use it a great deal to your advantage if you really tried it. But nevertheless, it constantly guards regular medicine.

An investigation of the expenditure of the \$7 remaining will convince even the most skeptical that the money is well spent for the interests of the membership. The accounts are carefully audited by committees and certified accountants. No salary is paid to any of the officers. You pay only for clerk hire, hall rent, postage, speakers—just the expense of running your business as a doctor, whether or not you are a member of the County Medical Association. Yes, this is a fact—every doctor in this county is guided, guarded, advised, protected by the Los Angeles County Medical Association whether or not he is conscious of that fact—be he member or outsider. These benefits can be enumerated, and probably will be in an early issue of this *Bulletin*.

Cost! Expense! It is a mere nothing in comparison with the benefits derived. For the initiation fee one has 2190 days in which to pay \$100. What club is so generous? What club is so beneficial? Long before the \$100 is paid in you will have a magnificent club building with library, museum, banquet hall, assembly halls—a joy to you, a pride to the profession. And all of the time you are receiving daily the benefits of organization.

*The Real Reason.*—But the real reason for the failure of so many to become members of the Association is that they *do not understand organization work and organization benefits*. They have not appreciated the word duty, obligation to themselves and their fellows. It often takes a jolt.

When war was declared in 1917 we had in Los Angeles County about 1700 registered doctors, men, women, lame, halt, blind, retired and perhaps otherwise. At that time there were about 600 members of the County Medical Association. How many outside of the organization got appointments who were not members of the Association? Some got jolts. Membership was a badge of fitness—the first evidence demanded by the government. How many men were there who were handicapped by sickness in the family or dependents or other good reason who did not want to be branded slackers and who wanted to do their duty? Who placed a badge of honor upon their breasts but that investigating committee of the Los Angeles County Medical Association?

What is the first thing asked by life insurance companies in the selection of examiners? Regular? Member of the county, state and American Medical Association? All great employees of medical service inquire *why* a man is not a member of organized medicine if he is not.

Several times it has come about that men who have remained outside the organization have desired to go abroad for study. In making their plans they have found that the fact that they were not members of the American Medical Association had disadvantages. Some of them got jolts.

Many times non-members are sued for malpractice or have some conflict with the law, often unjustly. And to whom but some committee or agency of the

\* The Bulletin of the Los Angeles County Medical Association, in its issue of July 5, contained the article above, by the Councilor of the District, Dr. William Duffield, and is presented in this column because of the importance of the subject.



Association do they turn for help? And why do they go to the Association? Because it has more power as an organization than the individual as an individual. It too often takes a jolt. Why wait for the jolt?

Not infrequently intelligent patients in search of medical service consult records to ascertain if men suggested are members of the organization. If not, what is the answer?

The above are a few of the strictly material advantages of membership in organized medicine, but the greatest advantage is in being a part of that which now and always stands as the leader of that which "promotes the science and art of medicine, protects the public health, and betters the medical profession." Nothing increases scientific medicine as much as organized effort—coöperation in research, school, hospital, community.

Our organization with its numerous section meetings, its regular general meetings, its special meetings with distinguished guests, surely is doing its part toward the promotion of scientific medicine. Are all of us reaping the benefits offered in proper measure?

It would be well to enumerate the activities of the Council and its many committees. Perhaps only a small fraction of the membership realizes the work accomplished for the good of the public and the profession in a multitude of ways. The silent work of the milk commission for more than twenty years is notable. The assistance given city, county, state and national health agencies directly and indirectly is seldom known but always of great worth. The matter of ethics, the protection of members wrongly accused, the advice in legal matters, the assistance in legislative and a host of activities are constantly functioning but seldom known to a large part of the membership.

Will you not ask for a meeting of the members of your section or branch or neighborhood with representatives of this committee to consider ways and means whereby non-members may be interested in affiliation?

Can any active medical man or woman afford to be without membership in the Association?"

WM. DUFFIELD, M. D. *Chairman,*  
*Committee on Permanent Quarters.*



#### SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held Thursday evening, June 7, 1928, in the hall of the Medico-Dental Club, 242 North Sutter Street.

The meeting was called to order at 8:30 p. m. with Dr. John J. Sippy, president, in the chair. Twenty-three members were in attendance:

Doctors E. A. Arthur, S. R. Arthur, N. P. Barbour, E. L. Blackmun, Fred P. Clark, Fred J. Conzelmann, J. F. Doughty, Linwood Dozier, C. F. English, P. B. Gallegos, J. P. Hull, H. E. Kaplan, B. M. Krout, R. T. McGurk, A. H. McLeish, F. J. O'Donnell, S. F. Priestly, G. H. Rohrbacher, G. H. Sanderson, J. J. Sippy, Margaret Smyth, C. V. Thompson, G. J. Vischi, Dr. Emmet Allan, University of California Hospital, San Francisco, California, guest and speaker of the evening.

The minutes of the previous meeting were read and approved.

The Committee on Pure Milk Measures presented the following resolution, which was adopted.

Be it Resolved, by the San Joaquin County Medical Society, That this Society favors higher standards of milk production in our own community and throughout the state, and that it favors amendment of the present Pure Milk Law to the end that the sale of market milk may be restricted to grade 'A' pasteurized, guaranteed, and certified, or the equivalent of certified milk produced under proper milk inspection service.

The chair then introduced the speaker of the evening, Dr. Emmet Allan, who spoke on The Modern Treatment of Diabetes. The speaker gave a brief his-

torical review of the development of the treatment of diabetes.

Diabetes is not a clear-cut disease. We do not know the full pathology. It is a disease of metabolism very common and grave in prognosis. The relation of obesity and overnutrition to diabetes is one of the most important and practical, from the standpoint of prophylaxis and treatment. With the modern methods of treatment, the death rate has been decreased and with careful attention to treatment, the life expectancy of a diabetic patient is that of any other individual. Treatment must be thorough and the physician must realize that he has a patient who will need supervision for twenty to forty years.

The speaker mentioned the various complications that frequently occur in the course of the disease, and suggested appropriate measures for their relief. Each diet has to be individual. The basic, underlying principle of the dietetic diabetic treatment is that of undernutrition which requires that, in addition to restriction of certain kinds of food (mainly carbohydrates), the total quantity shall be reduced. This principle is an enduring contribution to the modern dietetic treatment of diabetes. The members asked many questions which the speaker answered in a practical way.

The chair remarked that he felt sure he expressed the feelings of the society in conveying to Doctor Allan warm appreciation for his interesting talk.

FRED J. CONZELMANN, *Secretary.*



#### SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held at a dinner meeting at the University Club on Monday evening, June 11.

Present, sixteen members.

The application of Dr. P. A. Gray, of the Cottage Hospital, was read and referred to the Board of Censors.

The speaker of the evening was Dr. Sven Lokrantz, medical director of the Los Angeles public schools. He gave a very interesting illustrated talk on the health program of the Los Angeles public schools, with special reference to the treatment of heart diseases in children.

There being no further business, the meeting adjourned.

W. H. EATON, *Secretary.*



#### SANTA CRUZ COUNTY

On June 27, 1928, the society convened at the Hotel Appleton, Watsonville, at 8 p. m., and had as its guest Dr. George Ebright of San Francisco. Doctor Ebright reviewed the important features involved in the "Routine Examination of the Patient," emphasizing many details which are frequently omitted. A general discussion of the subject followed. Dr. Ethel Watters of Santa Cruz presented case histories of a series of twenty cases of amebic infection. The variety of symptoms and physical manifestations involved in this group of cases brought out the protean character of the infection in question.

Those present were: Dr. George Ebright, San Francisco; Dr. J. Harrington, Santa Cruz. Members, Doctors Bettencourt, Eiskamp, Liles, Koda and Woodard, Watsonville; Hatch, P. T. Phillips, Randall and Ethel Watters, Santa Cruz.

SAMUEL B. RANDALL, *Secretary.*



#### VENTURA COUNTY

The regular June meeting of the Ventura County Medical Society was held Tuesday evening, June 12, at Pierpont Inn.

Dr. H. E. Henderson of Santa Barbara read a paper on Atypical Pulmonary Tuberculosis in Children. This was discussed from a roentgen standpoint by Doctor Geyman of Santa Barbara.

Doctor Bianchi reported on the state meeting. Doctor Bianchi reported a fatal case of zinc stearate aspiration and presented a resolution opposed to the



household use of that article. A copy of said resolution is enclosed.

The following resolution was presented by Dr. J. Bianchi, and adopted by the Ventura County Medical Society:

Whereas, There has been a recent accidental death in this county which was directly attributed to zinc stearate dusting powder, and,

Whereas, There are many cases reported of similar accidents with a high mortality, and,

Whereas, There are many dusting powders as efficacious and without the dangerous possibilities of zinc stearate. To quote *Useful Drugs*, published by the American Medical Association, "Zinc stearate appears to have little or no advantage over zinc oxide." Therefore, be it

Resolved, That the Ventura County Medical Society go on record as being opposed to the household use of zinc stearate; be it further

Resolved, That copies of this resolution be sent to the druggists of Ventura County in the hope of getting their coöperation in discontinuing the indiscriminate sale of this product. Be it further

Resolved, That a copy of this resolution be sent to the secretary of the California Medical Association.

D. G. CLARK, *Secretary*.

## CHANGES IN MEMBERSHIP

### New Members

San Bernardino County.—Lyra H. George, Loma Lindo.

San Francisco County.—William J. Burkhard, J. Underwood Hall, Thomas J. Lennon, Adolph E. Schmidt, San Francisco.

San Mateo County.—Edward F. Ziegelman, San Mateo.

Santa Barbara County.—Percival A. Gray, Jr., Santa Barbara.

### Transferred Members

Herbert Z. Willis, from California to Nevada Medical Association.

### Resignations

Leonard H. Greenbaum, Los Angeles.

Priestley P. Osburn, San Diego.

### Deaths

**Bell, George.** Died at Fair Oaks, California, May 12, 1928, age 65 years. Graduate of Toronto University Medical Faculty, Canada, 1888. Licensed in California, 1918. Doctor Bell was an affiliate member of the Sacramento County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Brainerd, Henry Green.** Died at Pasadena, July 22, 1928, age 76 years. Graduate of Rush Medical College, Chicago, Illinois, 1878. Licensed in California 1887. Doctor Brainerd was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association. President California Medical Association 1922-1923.

**Carpenter, Frank Benton.** Died at Logan, Utah, July 16, 1928, age 70 years. Graduate Columbia University College of Physicians and Surgeons, New York. Licensed in California, 1885. Doctor Carpenter was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Nagy, Andrew.** Died at Palo Alto, June 23, 1928, age 43 years. Graduate of College of Physicians and Surgeons, San Francisco, 1919. Licensed in California, 1920. Doctor Nagy was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Tucker, William Grant.** Died in April, 1928, age 60 years. Graduate of Medical Department University of Michigan, 1892. Licensed in California, 1895. Doctor Tucker was a member of the Siskiyou County Medical Society, the California Medical Association, and the American Medical Association.

## UTAH STATE MEDICAL ASSOCIATION

WILLIAM D. DONOHER, Salt Lake..... President  
H. P. KIRTLEY, Salt Lake..... President-Elect  
M. M. CRITCHLOW, Salt Lake..... Secretary  
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....  
..... Associate Editor for Utah

### NEWS

We welcome Dr. William Donohier—the past year president-elect—to his new station as president of the State Association. And we ask the coöperation of all members and units of the Association towards a hearty effort to make his work easy and the progress of the Association during the coming year, not only as good but better than in the past. Here's to "Bill" Donohier. May he have a fairway with no great hazards and may he keep out of the rough. Fore! for the next twelve months.

And he's going to be followed by another good man. We congratulate and in a measure sympathize with Dr. H. P. Kirtley in his selection as president-elect. A notice of this catastrophe for "Pat" and this advantage for the Association in 1929 follows, along with a listing of other officers chosen for the next year before the close of the state meeting June 30.

And in passing we want to extend our good wishes to Dr. M. M. Critchlow, now selected as secretary. Maurice has so long and so faithfully served the Salt Lake Medical Society in the capacity of secretary that we know what his service will be to the state body.

\* \* \*

**Kirtley Heads Utah Doctors.**—The thirty-fourth annual convention of the Utah State Medical Association was formally brought to a close Saturday night with a banquet at the Hotel Bigelow, following the election of officers. President William D. Donohier, Salt Lake, took the gavel from the hands of Eugene H. Smith, Ogden, who has guided the medical men through the last year.

H. P. Kirtley, Salt Lake, was chosen president; E. R. Dumke, Ogden, was elected first vice-president; J. W. Aird, Price, was elected second vice-president, and R. A. Pearse, Brigham, was chosen third vice-president.

M. M. Critchlow, Salt Lake, was chosen secretary and E. D. Lecompte, Salt Lake, treasurer. J. R. Morrell, Ogden, was retained on the Board of Councilors, and F. A. Gocltz, Salt Lake, and C. E. McDermis, Castlegate, were elected to succeed John C. Landenberger, Salt Lake, and Joseph Hughes, Spanish Fork.

Sol G. Kahn, Salt Lake, was chosen as delegate to the American Medical Association, and E. M. Neher, Salt Lake, was elected alternate.

\* \* \*

The Salt Lake County medical profession were fortunate in having Dr. Harry Spiro with them just before the opening of the regular state convention at Ogden.

On the afternoon of June 28, Doctor Spiro conducted a clinic at the Salt Lake General Hospital, for the benefit of those who were able to attend. This was a Cardiac Clinic with material drawn from hospital cases on hand.

In the evening there was a special meeting of the Salt Lake County Medical Society in the lecture room of the Medical Arts Building, at which Doctor Spiro presented a very complete and interesting paper on the subject "The Importance of X-Ray Examinations of the Heart from Different Angles, as a Means of Diagnosing Various Valve Defects."

All component societies of the state association, having suspended regular meetings for the summer period, leaves Ye Editor without anything to report. Recently, however, we have carried reports from Utah and Weber organizations as well as from Salt Lake.

If Cache County and Box Elder will furnish regular reports they can make the list complete and show their good fellowship.

## MISCELLANY

From time to time in this department of California and Western Medicine, appear columns grouped under the following headings: Comment on Current and Recent Articles in this Journal; News; Medical Economics; Readers' Forum; California State Board of Health; and California Board of Medical Examiners. For Book Reviews, see index on the front cover, under Miscellany.

## NEWS

**Meeting of Western Branch American Urological Association.**—The annual meeting of the Western Branch of the American Urological Association will be held September 13 to 15, the first day in San Francisco and the second two days at Del Monte. Papers will be presented by a number of prominent Eastern and Western urologists. All physicians are cordially invited to attend.

## READERS' FORUM

### File of Transactions of California Medical Association In California State Library at Sacramento

The following letter has to do with the file of transactions of the California Medical Association which is in the possession of the State Library of California.

It will be noted that certain issues are missing. The state librarian, Mr. Milton J. Ferguson, will appreciate the coöperation of any members who would permit the state of California to complete its files. It is desirable that the State Library should have a complete file. Any members who can aid in this work are requested to do so through the office of the secretary of the California Medical Association, so that our own organization may know the names of members who have historical data. The letter follows:

To the Editors:

The State Library has the following transactions of the California State Medical Society:

- 1, 2, 3 sessions for 1856-58.
- 1, 2, 3, 4 sessions for 1870-74 (after reorganization).
- 7 sessions for 1876-77.
- 9 sessions for 1878-79.
- 20 sessions for 1890.
- 23 - 30 sessions for 1892-1900.

Also *California State Journal of Medicine* and *CALIFORNIA AND WESTERN MEDICINE*, V. 2, 1904—to date.

If you can aid the State Library in filling in its file of the transactions and also help us to secure the first volume of the *California State Medical Journal* we will be most grateful. The State Library files should be complete.

Very truly yours,  
MILTON J. FERGUSON, *State Librarian*.

## MEDICAL ECONOMICS

### OUTLINE OF STUDIES\*

#### PART II

#### Studies on the Cost to the Family of Medical Services and the Return Accruing to the Physician and Other Agents Furnishing Such Services

6. *The Cost of Sickness, During a Twelve Months Period, Among Various Representative Population Groups, Including the Incidence of Sickness.*—Surveys would be made in a large city, a small city and a rural community.

The part of this study dealing with the incidence of sickness would be similar to that conducted by the

\* This is the second part of Outline of Studies on "Cost of Medical Care." Part I was printed in the July issue.

United States Public Health Service in Hagerstown, Maryland, but it would deal with a larger number of families and with all economic groups.

The investigation would furnish data not only as to the number of cases of illness treated by local practitioners, but it would also deal with the frequency of the physician's calls. In this connection, it would be illuminating to consider the present day relation between the individual physician and the individual patient. In what proportion of cases is this the intimate relation of the past, and in what proportion of cases has a strange physician been called?

In addition, the study would reveal the number of cases of sickness treated by cultists, the number prescribed for by druggists, and the number treated at home or not treated at all. A physician in Philadelphia questioned his private patients for a period of four years regarding their experience with cults and found that 34 per cent of them had patronized one or more irregular practitioners within three months of the time they called him. It is hardly likely that the results of this investigation represent conditions throughout the country; but no one knows what proportion of sick people are attended by osteopaths, chiropractors, Christian Scientists and other cultists. The facts might be surprising. It is time that they were made available. Similarly the kind of dental service obtained should also be taken into account.

The extent to which illnesses are treated free by physicians, dentists, nurses, clinics and hospitals should be carefully considered, and the extent to which patients desiring to pay in full for services have been unable to do so.

The investigation should take into account the adequacy of medical care for various specific illnesses or types of illnesses provided by individual private physicians, by hospitals, by clinics and by other agencies. The extent to which medical treatment is applied at a stage when prevention is possible might also be considered. It is possible that this particular part of the study would have to be supplemented by medical research work among selected cases in regard to the quality of treatment.

The principal part of the study would show what proportion of the annual budget is spent by families or individuals for the care of sickness and the promotion of health. Studies of this kind have already been undertaken by the Federal Government. It is suggested that the subject be pursued into somewhat greater detail, with particular reference to

(a) The amounts expended by or for families of various incomes for certain types of illness and for preventive service;

(b) The distribution of these expenditures, with emphasis on the fallacies involved in utilizing "average" figures.

This study would supply data much sought for as a basis for budget making and for determining eligibility for charitable aid. Such a study is much needed to show that while average figures of family expenditure for care of health are useful as a basis for estimating the cost of sickness to the community, these average figures cannot be applied in judging the resources needed by individual families for the adequate care of the health of their members during any given year.

The facts derived from such a study would throw light on the question,—How far is the insurance prin-



ciple applicable as a basis for meeting the community cost of sickness?

Finally, the study would deal with the elements entering into the cost of medical services, such as medical fees, nursing fees, medicines and hospital care for the entire duration of certain diseases. Despite the vast effort made in combating tuberculosis, syphilis, infantile diseases, diseases and defects of school children, mental diseases and other conditions which have been attacked by health movements, there are hardly any data on the cost of adequate care for these conditions. The cost of care is obviously one of the major factors in determining what the mass of the population can do when these diseases occur despite preventive effort. Data collected on a case basis for a series of diseases and conditions are fundamental to planning both curative and preventive programs, for judging the extent to which cost can be reduced by organized medical service, and for planning the adjustment of the constituent elements in cost, the chief among which is the remuneration of the physician.

Incidentally, this study might properly deal with the difficulty encountered by people, especially strangers in a community, in finding the proper physician for a given kind of illness. "My own opinion is that a lack of knowledge regarding the proper physician to select in various types of illness," states one writer, "is a distinct difficulty in our present system of providing medical care." Here is a subject of importance which has not received proper attention. Some information might be gained by consulting clinic patients, for the statement has been made that many patients accept clinic service because they do not seem to know how to obtain the services of a private practitioner. It is also possible that a systematic inquiry among the residents of a new suburban community might throw light on the subject.

That part of this study to be conducted in urban communities could well be made by the Metropolitan Life Insurance Company. That part to be conducted in rural communities may perhaps be made by the Agricultural Experiment Stations of various states, with the aid of the Bureau of Agricultural Economics of the Agricultural Department at Washington.

This study should be considered under Section I also.

**7. *The Influence of Specialization on the Cost of Medical Service.***—There is considerable difference of opinion on this subject. The claim is made on one hand that general practitioners might handle much of the practice now referred to specialists, and it is asserted by others that a large proportion of cases require the services of one or more specialists and scientific equipment. One writer believes that 20 to 40 per cent of all patients represent obscure cases.

It is obviously important to ascertain what percentage of cases now being treated require the services of specialists, also what percentage of cases not being treated.

The first question might be answered by a study of hospital and clinic records; and the last question be dealt with in connection with Study 3.

**8. *The Cost of Adequate Medical Service for a Family During a Twelve Months Period.***—The question has been asked, What would medical service cost a family for a year if adequate service were secured? It would be illuminating to find out.

The coöperation of 100 or more families might be obtained, who could afford to pay reasonable prices for adequate service. It would then be necessary to secure their consent to employ all the different types of service considered to be adequate and keep an account of all expenses for a year.

**9. *Capital Investment and Income in Private Practice.*** This study would reveal the cost of education in all branches of medical practice, including dentistry and nursing, the cost of equipping an office, and other expenses incident to the establishing of a practice, including social obligations considered necessary to professional success, as well as the cost of main-

tenance. The study would raise the question as to what extent the capital required for the practice of modern medicine can be furnished by the individual physician, dentist, and nurse.

This study would distinguish clearly between gross and net income, for it is the net income which must be compared with the salary paid for public health, industrial, insurance, institutional and other positions in organized medical service. Extensive inquiry among physicians might reveal a need for a more or less uniform system of accounting in private practice.

It would provide not only the figures showing the average, the minimum, the maximum, and especially the modal incomes of these various groups of persons; but it would also take into consideration the significance of various features peculiar to medical service: that the income is an irregular one, that it is dependent on the misfortune of other persons, that the physician's bill reaches the patient at a time when his income is less than usual and when he is at an economic disadvantage, that the physician's bill represents a residual claim, the delay in payment meaning a loss of interest, that it frequently seems necessary to charge higher prices than are expected in order to make allowances for complaints and necessary reductions, and that the bill must be determined for a service which has not been standardized.

The study should include data on the amount of time devoted by practitioners to free service and on the percentage of bills which remain uncollected. It would be especially interesting to ascertain the percentage of physicians, nurses and dentists who are employed on a salary basis. (A statistician with the Rockefeller Foundation has roughly estimated that this figure is 10 per cent, but he believes the subject should be investigated further.) The salary of state and local health officers, of course, should also be included.

Included in this research, should be a study of the routine day of a number of general practitioners. This should reveal the amount of time spent in office, at the bedside and in traveling. It ought also to show how much it costs a physician, both in urban and rural communities, to make a single visit. This study extended for a year would show what proportion of time is spent at meetings of medical organizations, in study at home, in graduate work and in recreation.

The facts which would be furnished by this investigation are fundamental to an understanding of the medical situation and reasonable policies for dealing with it in this country. They would be important for medical educators and would throw light upon the problem of the adequacy of the supply of physicians in small communities, in health departments and in hospitals. The study would be welcomed by physicians.

Incidentally, the basis or bases on which present day physicians decide what their fees should be might well be considered in connection with this study. Most physicians apparently desire to adjust their fees to the economic condition of the patient, but as a rule they have no method of determining the patient's circumstances. Of sixty-two doctors answering a questionnaire conducted by the medical society of Brooklyn, 57 per cent said they left it to the patient to volunteer information regarding his income. There appear to be no accepted bases of determining the amount of the fee. One physician may charge the patient a month's income, another may reduce his usual fee for members of his club. Further study of this subject might throw considerable light on the general problem of cost to the patient.

This study should be considered in connection with Study 6 on the Cost and Incidence of Sickness and Study 5 which provides for surveys of medical services in communities of various sizes.

The questionnaire method of investigation should be used, but it would be supplemented by an intensive field study.

The American Medical Association is well equipped to conduct this entire study. It might be made with the coöperation of the American Dental Association,



the Committee on the Grading of Nurses' Schools and other organizations.

10. *Capital Investment in Hospitals and Clinics.*—The subjects to be covered by this research would include the amount and kinds of capital investment, the sources from which capital is provided and the relation of capital and the management of institutions to the privileges, compensations and responsibilities of physicians working in the hospitals and clinics. Specifically, the study should provide answer to such questions as the following: What per cent of hospitals and clinics are operated for profit? What per cent of these institutions provide facilities for persons of moderate means? To what extent is there waste in their operation?

This study would supply fundamental facts of use to trustees, tax appropriation bodies and private contributors to hospitals. The same facts should be of service to the medical profession as a basis for a clearer understanding of the organization and the community policies of hospitals and clinics, and of their relation to the medical profession.

In selecting institutions for the study, the entire number in three or four states might be chosen, or certain geographical sections of representative states. Or it might be practicable to select at random 200 or 300 hospitals in a number of representative states. This study might be made by an economic research organization which would secure necessary medical advice.

Incidentally, this study might well consider the question: What should be the proper charge for adequate hospital service in a non-profit-making institution, in a large city, in a small city, and in a town? The assumption seems to be made in some of the discussions on the cost of medical service that marked reductions are possible. A study of this kind might show how far this is true. It would also reveal the need for uniformity in cost accounting.

Before a thorough study of this subject is begun, it is proposed that a study of present methods of evaluation be made. The main study would be made through the utilization of questionnaires and existing reports, supplemented by intensive field study.

The American Medical Association is well equipped to conduct this study. The American Hospital Association and similar organizations might cooperate.

(To be continued in next issue)

## TWENTY-FIVE YEARS AGO \*

### EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume 1, No. 10, August, 1903

From some editorial notes:

... Attack on Medical Law. At the special request of the Journal, Mr. W. C. Tait, the attorney for the State Board of Medical Examiners, has given, in this issue, a synopsis of the *status praesens* because of the latest attack made on the Board in the courts. . . .

... The present attack is from men holding a license or those who have failed to secure one by passing the required examination. It is a remarkable thing that any man could wish to wipe out the mark that distinguishes him from the illegal practitioner, or could wish to enter a company where these black sheep could also claim a place. . . .

... No one can say, as yet, what the direct effect of exposure to x-ray influence actually is. It is probable that such changes as have been observed to take place following x-ray exposures are due to purely physical effects; but this has not been demonstrated. Furthermore, granting this assumption to be true, we do not know what the secondary effect of such physical changes in the cell structure may be. . . .

... The Red Cross Muddle. The poor Red Cross Society seems to have got itself into a good deal of

a muddle. The President, Mr. Roosevelt, will have none of it; those who object to anything that Miss Barton happens to think, are thrown out of it; and there you are! . . .

From an article on the County Hospital Needs of San Francisco:

... In 1902-1903 the Board of Health had given it for the support of the City and County Hospital \$105,000. This year it has been given \$115,000, an increase of \$10,000. The Journal confesses to great interest, even curiosity, as to how this increase is to be expended and it has made a few inquiries to satisfy its curiosity. . . .

From an article on A Study of the Health of University Girls, by Mary E. B. Ritter, M. D., Berkeley: . . . We are hearing constantly of the ill effects of higher education upon the health of women.

My personal observations in the University of California for the past thirteen years have led me to believe that the majority of college girls and boys improve in health during the four years of their college life, at least those students who take their work seriously and rationally. There are, of course, the social butterfly who tries to dance all night and study all day, and the "dig" who burns the midnight oil too assiduously in a close, stuffy room; and these unwise young people of both sexes do not as a rule make a success of either education or health. . . .

From an article on Diploma vs. Certificate by William C. Tait, attorney for the California State Medical Examiners:

... The present medical law is running the gauntlet of the courts. Such was the fate of its predecessor of 1876. It was that of all similar legislation. The present law was not obtained without a struggle. Like all legislation which aims to elevate the standard of the medical profession, it met with opposition at its birth; its history has been a struggle for existence. The high standard which it established exposed it to the attacks of those who thought the former system had given them vested rights, and whose interests the measure injured, the moment the Board of Examiners, the organ provided for its administration, sought to enforce it. The first legal attack upon this law began last fall. Courts time and again have declared that the remedy for unjust or oppressive medical laws lies with the legislature, not with the courts. The warfare was carried to the legislature, where the battle was lost. Renewed in the State Medical Society, the result was the same. The court is now the sole battle ground. . . .

... The legal opponents of the law consist of two classes: those who attack it on all fours, hoping to overthrow it altogether, and those who pretend to desire only the destruction of the Board of Examiners. . . .

... At Sacramento the opponents of the present law sought to give the power of appointment to the State Executive. The legislature refused to do so. The courts are now asked to oust the Board so that the appointment will fall to the Governor by operation of law. The contention now is that the Board must be appointed by the Governor, that the power delegated to the medical societies is unconstitutional. It has often been claimed, notably by Jefferson, that appointment to office ought to be exclusively an executive function, but very seldom that it must be such. Our state constitution does not make it such. It divides it between the executive and the legislative, assigning to the legislative the right to exercise it itself, or to delegate the power as it may see fit. . . .

From an article on the Cure of Cross Eyes, by Vard H. Hulen, A. M., M. D., San Francisco:

... The correct time to begin the treatment of heterotropia is just as soon as the condition is discovered, no matter how young or how old the patient may be. . . .

\* This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.



# CALIFORNIA AND WESTERN MEDICINE

VOLUME XXIX

SEPTEMBER, 1928

No. 3

## RESEARCH IN MEDICINE ON THE PACIFIC COAST DURING 1927-1928\*

By K. F. MEYER, PH.D.  
San Francisco

IT is generally admitted that medicine of today is so little affected by great discoveries of individual men that the historian of the twenty-first century may be at a loss to pick the greatest names from the many great ones. The art of healing is becoming the art of great masses of highly trained men. A review of the progress in medicine on the Pacific Coast is therefore an account of the achievements of the men who for the past ten or fifteen years have developed centers and schools of research. Although there are unquestionably definite tendencies in the nature of the problems under consideration by the various groups, it is evident that the West emancipates itself from the East not only in the selection of the investigative programs, but also in the skillful and frequently brilliant execution of experimental studies. In the light of the universal recognition accorded to the investigations of the Pacific Coast workers it is naturally a debatable question whether or not it is a wise procedure to herald especially the endeavors of those who might prefer to contribute to the progress of science with the least amount of notoriety and clamor. Aside from this feeling of uncertainty it must always be appreciated that in the allotted time it will be impossible to do justice to all of their research activities. This brief review obviously must be a limited and possibly a one-sided account of the achievements of a few groups of workers which, however, may serve as an inspiration to those who guide the destinies of civilization on the Coast.

For the sake of an orderly presentation the achievements may be conveniently discussed under the following group headings:

1. Research into the nature of the parasitic causes of disease.
2. Research into the nature of the causes of other than infectious diseases.
3. Fundamental investigations dealing with biological phenomena.
4. Research in the treatment of disease.

### I. RESEARCH INTO THE NATURE OF THE PARASITIC CAUSES OF DISEASE

*Leprosy.*—Probably the most important contribution in this field has been made by Professor

Ernest L. Walker of the George Williams Hooper Foundation for Medical Research, University of California, through his bacteriological studies of leprosy extending over a number of years and continued in Hawaii during the past year. The various types of coccoid, diphtheroid and actinomycoid organisms that have been repeatedly cultivated from leprosy lesions by numerous investigators are all stages in the life cycle of one pleomorphic and facultative acid-fast organism which is a member of the genus *Actinomyces* as now constituted. Hansen's acid-fast bacterium of leprosy lesions is just one stage in the life cycle of this actinomyces. Like other thread-like forms, the lepra actinomyces is a soil organism of wide but irregular distribution. It is therefore probable that leprosy is primarily a soil infection of wounds, but this does not exclude the possibility that the disease may sometimes be transmitted by direct or indirect contact.

*Tuberculosis.*—In the related field of tuberculosis Dr. Frederick Eberson, department of medicine, University of California, has continued his studies on the products of the growth of the tubercle bacillus on synthetic mediums. He has been able to isolate various fractions, some of which are thermolabile and of which others are thermostable. One of these fractions present in the Berkefeld filtrates possesses antigenic properties and behaves in many respects like a toxin. The same worker has noted that guinea-pigs treated with the toxin-like filtrate acquire a state of allergy and a specific resistance to tubercle infection. Animals injected with inactivated (heated) toxin filtrates behaved like untreated controls. The experiments of Professors C. M. Haring, J. Traum, F. M. Hayes, assisted by Mr. B. S. Henri, at the California Agricultural Experiment Station have confirmed the observation of Calmette that calves vaccinated with a strain of tubercle bacilli attenuated by cultivation on bile potato (the so-called B. C. G. vaccine = *bilié* Calmette-Guérin vaccine) are resistant to an intravenous injection of two milligrams of virulent tubercle bacilli. However, the protective value of the vaccination against infection by feeding milk containing tubercle bacilli has not as yet been demonstrated. The outcome of these tests will be awaited with a great deal of interest since they may help to decide the following important questions: Is the B. C. G. vaccine harmless? Does it immunize against an invasion of the tubercle bacilli by the natural portals of entry of the diges-

\*From the George Williams Hooper Foundation for Medical Research, University of California Medical School, San Francisco.

\*Read in part before the Pacific Division, American Association for the Advancement of Science at Pomona College, June 13, 1928.



tive or respiratory tract, and should it be used in the protection of infants of tuberculous parents?

By growing tubercle bacilli on media which diminished the fat and wax of the bacillus to a minimum Professor John Weinzirl of the department of bacteriology and pathology, University of Washington, was able to show that the normal bacilli and those without fat show no difference in resistance to chemical and physical agents. Apparently the assumption that the fat protects the organisms against external agents is an error.

*Undulant or Malta Fever.*—Undulant or Malta fever has attracted the attention of a number of workers (Dr. E. C. Dickson, Stanford University Medical School and Dr. John Ruddock, Los Angeles) since in a number of instances specific agglutinins against the bacillus of infectious abortion of cattle, *Brucella abortus*, has been demonstrated in the blood serum of patients. The old question—is the abortion bacillus or some related species pathogenic for man, and is it conveyed to human beings through raw milk—is only partially answered. Feeding experiments on monkeys by Miss B. Eddie and myself have shown that, contrary to former observations, a single feeding of several million abortion bacilli of animal and human origin regularly infect these animals. Although typical temperature reactions may be absent and blood cultures may be rarely obtained, the serum invariably contains agglutinins on the tenth to the fifteenth day after the feeding and the ingested bacilli remain latent for weeks in the spleen, bone marrow, and lymph nodes. It appears that young apes are less susceptible than older animals. Epidemiologic studies have shown that the raw milk of the dairies, which are suspected of being responsible for the human cases of undulant fever, is very heavily infected with abortion bacilli.

*Tetanus.*—A new type of tetanus bacillus (Type IX) found by Mr. George E. Coleman and Miss J. Gunnison in garden soil, a new type of *Cl. botulinum* (Type D) as well as a dysentery bacillus hitherto unknown in California, have been studied by members of the Hooper Foundation staff.

In contrast with all usual experimental procedures, by employing formaldehyd as a tissue debilitant, Mr. George E. Coleman has regularly infected guinea-pigs with intramuscular injections of an exceedingly small number of detoxified spores of *Cl. tetani* and *Cl. botulinum*. This dependable technique is well suited to evaluate the curative and protective properties of certain polyvalent antitoxic and antibacterial sera which have recently been prepared against these anaërobic bacteria.

*Protozoan Parasites.*—In parasitology Professor C. A. Kofoed of the department of zoölogy, University of California, describes a new ameba, *Councilmania dissimilis*, from human stools. This protozoa may be distinguished from *Entameba dysenteriae* by a large blob of chromatin, atypically dispersed karyosome, eight chromosomes, eight nucleated cysts and budding forms in the stools. According to Doctors H. C. Hinshaw and

F. V. Simonton of the Stomatological Research group the incidence of *Entameba gingivalis* infection in the buccal cavities of 357 individuals carefully examined was 46.34 per cent. The parasites do not occur in the strictly normal mouth. They are invariably found in typical inflammatory pyorrhea alveolaris, and they are much more frequently encountered in persons belonging to older age groups. Although the etiological relationship of these protozoa to parodontoclasia is by no means clear it is noteworthy that Professor C. A. Kofoed and Doctor Hinshaw have demonstrated the distribution of the *Entameba* in the pyorrheal pocket. A peculiar biological association of *Leptotrichia*, calculus and ameba produces a very interesting picture. The *Leptotrichia* are directly concerned with the deposition of calcium salts. In the masses of the projecting filaments the conditions favorable for shelter, food supply, and reaction encourage the multiplication of the ameba, while in turn the inflammatory process in the interdental papillae supplies the nuclear detritus which may be required by the protozoa and may also contribute to the phosphatic material of the calculus. Doctor Hinshaw has also successfully infected dogs with *Entameba gingivalis* and *Trichomonas buccalis* of the human mouth. The infection persisted for four months, and was only successful when inflammatory and gingival pocket formation existed prior to the beginning of the experiment.

Quantitative examinations of the mouth flora under different dietary conditions by Miss B. F. Howitt of the Hooper Foundation and Dr. W. C. Fleming of the Stomatological Research group have shown that the oral bacteria are more influenced by the local food remains than by any general systemic effect produced by dietary changes. Artificial cleaning with the toothbrush is many times more effective in reducing the absolute number of mouth organisms than is the supposed cleansing accomplished through a diet composed presumably of detergent elements.

*Bacterial Toxin Production.*—The mechanism of toxin production of certain bacteria and the chemical nature of the poisons are still unknown although Dr. Claus W. Jungeblut of the department of bacteriology and experimental pathology, Stanford University, has confirmed previous observations that toxic and virulent strains of *B. diphtheriae* may be dissociated into atoxic varieties by means of cultivation in a medium containing specific antitoxin. However, these altered strains retained their virulence for guinea-pigs. Furthermore the atoxic filtrates gave definite flocculation with diphtheria antitoxic sera according to the method of Ramon. Miss E. Lewis of the department of bacteriology, University of California, has made similar observations on the toxin and antitoxin mixtures of *Cl. botulinum*. These various results cast considerable doubt on the specific nature of the flocculations which occur in neutral mixtures of bacterial toxins with their respective antitoxins. Some progress has been made in the purification of the botulinus toxin. Dr. H. Sommer and his associates at the Hooper



Foundation have secured highly potent dry toxins by adjusting a toxic filtrate to a  $P_H$  of 4.4 and by dialyzing the precipitate. Such toxins are remarkably stable and their pharmacologic properties, contrary to the views of Bronfenbrenner are not intensified by acidification. Furthermore the potency of the poison according to Mrs. Wagner-Sommer can be enhanced by a brief incubation with protein solutions previous to the subcutaneous inoculation.

A new principle, a nonspecific systemic adsorption for a rational chemotherapy of bacterial intoxications, has been developed by Dr. P. J. Hanzlik, professor of pharmacology, and Dr. E. M. Billt, assistant in pharmacology, Stanford University School of Medicine. The protective action of twenty-three dyes and drugs was tested in mixtures with botulinus, diphtheria and tetanus toxins injected locally, and also by injection of the dyes intravenously and the toxins intramuscularly. Of all the agents tried Congo red was most efficient. Intravenous injection of the dye protected the majority (about 80 per cent) of the animals poisoned with diphtheria and botulinus toxins, but not those poisoned with tetanus. Congo red protects also against poisoning from a variety of drugs (curare, strychnin, guanidin, oxalates, morphin). Since a physical binding of the curare occurs in curare-congo mixtures it is suspected that the same is the case with the toxins. In fact all the evidence indicates that the mechanism of the protection is mediated through the physical properties of the dyes, *i. e.*, through surface activity in which adsorption is the dominant factor.

*Bacteriophage Phenomena.*—Professor E. W. Schultz has diligently pursued his investigations on the bacteriophage phenomena. Contrary to the general belief that bacteriophages active against intestinal organisms exhibit a high degree of resistance to the action of trypsin, he found two races of staphylococcus lysin rendered inactive by this ferment within a period of about forty-eight hours. In collaboration with Mr. K. M. Taylor he secured a lytic filtrate from eight spontaneous tumors of white mice active against the dysentery bacillus. It is conceivable that the bacteriophage in these tumors originates from the intestinal content of the mice.

*Local or Tissue Immunity.*—Various factors are probably responsible for the many manifestations of local or tissue immunity which have been studied in recent years. Dr. H. L. Averill at the Hooper Foundation was able, contrary to previous knowledge, to protect guinea-pigs against a fatal infection with *aërtrycke* bacilli through the skin, provided that twenty-four to forty-eight hours prior to the injection of the virulent organism the skin had been treated with "antivirus." The same principle, according to Mr. L. Hertert, Hooper Foundation, does not afford immunity against a hemolytic skin-invasive streptococcus of guinea-pig origin. However, the Besredka method of local treatment with specific dressings, in the light of encouraging clinical results reported by Dr. H. L. Averill, deserves more extensive investiga-

tions. Dr. Rachel E. Hoffstadt, department of bacteriology and pathology, University of Washington, has vaccinated groups of students by mouth. Triple typhoid vaccine in gelatin capsules containing an alcoholic extract of bile in a starch matrix were administered orally before breakfast. Since agglutinins and other antibodies appeared in the blood it is evident that a general immunity response and not a local tissue resistance was induced by the oral vaccination. A local mechanism of defense in the uterus during the puerperium is suggested from experiments of Dr. C. F. Fluhmann, division of obstetrics and gynecology, Stanford University School of Medicine. During pregnancy the reticulo-endothelial cells tremendously increase both in number and in activity in the pars uterinae, the cornu and the tubes of rabbits. This behavior of the cells persists for several weeks during the puerperium.

## 2. RESEARCH INTO THE NATURE OF THE CAUSES OF OTHER THAN INFECTIOUS DISEASES

In this group will be considered a variety of studies on dietary deficiencies, the function of endocrines, heredity and general physiology.

*Antisterility Vitamin Fat-Soluble E and Other Vitamins.*—First in importance are the researches of Professor H. M. Evans, Dr. George O. Burr, and their associates in the department of anatomy, University of California. Their extensive studies on the antisterility vitamin fat-soluble E have been summarized in a valuable monograph. More recently during the same investigation it was found that the curative effect of the fertility vitamin E, present in wheat germ, is counteracted by certain substances in fats and oils. Furthermore they have observed that highly purified and almost fat-free diets which give subnormal growth and ovulation, except when supplemented with small amounts of beef liver, lettuce or lard, can also be adequately supplemented by other fats, in particular by coconut oil, corn oil or butter. It is not unlikely that the favorable substance, since it can be recognized only in the fatty acid portion after saponification of the fats, is a new vitamin (F).

*Diets and Growth.*—In another series of experiments the same workers have noted that a "pure" diet of casein (Van Slyke), sucrose and salts is not adequate for normal growth even when supplemented by very high levels of vitamins A, B, C, D and E. Lactation fails with the pure diet. The inclusion of lettuce or lard in the diet allows the females to produce good litters and they successfully wean them, but the second generation is always retarded in growth. These observations suggest that the "pure" diet requires either an extraordinary amount of some of the known vitamins or an unknown member (F or H) of the vitamin class.

*Lactation and Vitamins.*—That successful lactation demands more growth-promoting vitamin B than normal growth of the mother has been stressed by pediatricists and experimenters on dietary deficiencies. According to Professor C. U.



Moore and his associates at the Collin's Nutritional Research Laboratory, University of Oregon Medical School, additional proof has been furnished that young rats nursed by mothers on a minimum vitamin B diet show a high mortality from polyneuritis and visceral and cerebral hemorrhages. By increasing the yeast in the diet from 2 to 7 per cent the mortality may be decreased from 72.9 to 9.3 per cent. Similar experiments of Professor Evans and Doctor Burr clearly indicate that the additional yeast is needed for lactation solely because of its contribution of anti-neuritic vitamin B and not because of the growth-promoting vitamin B of the diet. The following observation confirms this. When tikitiki (a dilute alcoholic extract of white rice polishings made by the Philippine Bureau of Science), which is almost lacking in growth-promoting vitamin B, is given to lactating mothers without increased yeast dosage normal lactation can also be produced. Clinical observations by Dr. C. U. Moore of Portland leave no doubt that the laboratory findings have a direct bearing on the problem of the nutritional requirements of lactating women, who on the average American dietary produce a milk that is exceedingly low in vitamin B. Equally important are the experiments of the same worker, who was able to show that puppies were stunted and prematurely died when vegetable fats were substituted for butter in the diet. An excess of alkali in the diet, regardless of its calcium-phosphorus ratio may, according to Doctors M. R. Jones and F. V. Simonton of the Stomatological Research group, initiate retrograde skeletal and dental defects comparable to those seen in man. The alveolar process appears to be more susceptible to slight dietary errors than do the long bones. In fact, diets which are potentially basic in reaction and low in calcium, protein and vitamins produce in adult dogs lesions similar to those of a noninflammatory type of parodontoclasia which may be cured by feeding hydrochloric acid and cod-liver oil, in conjunction with roentgen rays. The studies of Mr. Ohman Horace Cady of the department of chemistry, Stanford University, suggest that vitamin A is withdrawn from the blood as rapidly as absorbed from the alimentary canal of dogs. The concentration of this vitamin in the blood of dogs is normally very low, and it undergoes no measurable increase during the absorption of large amounts from the digestive tract.

*Avitaminoses.*—The general organ and tissue injuries which develop in the course of certain avitaminoses deserve a more careful study than has hitherto been made. It is therefore most gratifying to note that a number of workers have addressed themselves to this difficult and not always appreciated task. Professor A. W. Meyer and Mr. L. M. McCormick of the department of anatomy at Stanford have made a careful gross and microscopic study of the tissue changes in experimental scurvy of guinea-pigs. An almost universal afebrile, lytic process induces frequently hemorrhages because of the destruction of the walls of the blood vessels, necroses, degenera-

tions in the parenchymatous organs, anemia and changes in the skeletal system, etc. The changes in the gums and teeth produced in rats on deficient diets have been analyzed by Dr. J. A. Marshall of the College of Dentistry, University of California. Dr. K. S. Bishop of the Hooper Foundation, working under the auspices of the John C. and Edward Coleman Fund, noted marked abnormalities of the skull bones and bones of the ear capsule, including the stapes and other ossicles, produced by two ricket diets. However, this is a completely generalized abnormality in both instances, and these diets do not cause localized areas of distorted tissue. Furthermore, the ligament of the foot plate of the stapes and the articulating cartilage cells remain unaffected.

*Paralysis and Deficient Vitamins.*—An upper motor neurone paralysis induced in rats by vitamin-E deficient diets is the subject of a careful inquiry by Professor H. M. Evans, Doctors Burr and R. W. Harvey of the department of anatomy, University of California. Finally, vitamin A injures the female reproductive system of the rat so that fertilization and implantation fail (Professor Evans) or spontaneous deciduomatous tumors develop in the uterine horns of rats kept on diets low in vitamin A (Doctor Bishop) or E (Professor Evans and also Doctor Bishop and Professor Agnes F. Morgan).

*Diabetes.*—A year ago Bergey of Philadelphia announced that diabetes mellitus could be produced in rabbits by a single intravenous injection of a sterile Berkefeld filtrate of the urine of diabetic patients. Professor E. W. Schultz and Messrs. S. J. Johnson and G. T. Akaimatsau of the department of bacteriology and experimental pathology, Stanford University, in carefully controlled experiments were unable to confirm these observations.

*Mussel Poisoning.*—A catastrophic and extensive outbreak of mussel poisoning, which occurred in July, 1927, in the vicinity of San Francisco, prompted Dr. H. Sommer, Miss P. Schoenholz and myself to make an inquiry into the nature and the origin of the poison. It was found that fresh *Mytilus californianus* collected on the coast contain a highly potent nerve poison, probably a quarterly or tertiary amin, which is readily extracted with alcohol or acidified distilled water. The poisonous properties have disappeared during the winter months, but have again appeared in certain mussel beds as far north as Eureka. A metabolism disease of the mollusks intimately associated with the spawning functions is suspected.

*Rattlesnake Venom.*—Special methods of collecting rattlesnake venom for the preparation of a potent antivenin have been developed by Dr. L. M. Klauber of the Zoölogical Society of San Diego.

*Pituitary Gland.*—During the past ten years the mystery surrounding the physiology of the pituitary gland has been gradually unveiled by workers on the Pacific Coast. That the anterior hypophysis is indispensable for growth and that an increased amount of the hormone of this organ



is the direct cause of overgrowth, is now fully established. It is equally certain that a lessened amount is the cause of various endocrine dys-trophies. Professors Philip E. Smith and Earl T. Engle of the department of anatomy, Stanford University, working on hypophysectomized rats, were able to overcome the disabilities produced by the removal of the pituitary by fresh daily homo- and heterotransplants of the hypophysis. Professor F. L. Reichert of the department of surgery, Stanford University Medical School, has obtained similar results by this replacement therapy, using rabbits' hypophyses on a puppy whose pituitary was removed when six weeks old.

*Hypophysis and Sex Gland Function.*—The relationship of the hypophysis to the normal function of the sex glands is evidenced by several recent studies. Professors Philip E. Smith and Earl T. Engle have observed that the administration of a gonad-stimulating substance, probably a hormone, from the anterior hypophysis liberates in rats, mice and guinea-pigs a large number of ova. These eggs may be fertilized and as many as twenty-nine embryos may develop in a single pregnancy within a month. According to Professor Engle the same hormone is the regulatory factor in compensatory ovarian hypertrophy, thus an increased amount causes ovarian grafts to develop mature and cystic follicles, even when transplanted into the testis of an adult male. According to Dr. G. Van Wagenen of the department of anatomy, University of California, the hypophyseal extract raises the body length and the weight of castrated male rats above that of the controls. Large placentomata may develop if, according to Dr. L. Brouha of the same department, rats are injected daily with hypophyseal fluid and if the uterine mucosa is injured around the fifth day of injection and the animal killed five to seven days after operation.

*Hereditary Transmission.*—Constitutional or hereditary factors unquestionably play an important rôle in the etiology of certain diseases. For a number of years Professor C. H. Danforth of the department of anatomy, Stanford University, has followed in laboratory animals the hereditary transmission of such conditions as adiposity, anemia, the doubling and reduction of parts in the mouse, and the abnormal persistence of caudal endoderm. More recently he has, in collaboration with Mr. Francis Foster, studied the agents regulating plumage production and the relation of certain genetic and endocrine factors to somatic manifestations in the fowl. Through skin grafting a convenient method has been found of analyzing some of the factors involved in feather production and in growth changes in the developing skin. The experiments indicate that several similar, if not identical, feather characters can be produced either by breeding or by therapy. Dr. E. S. Sundstroem of the department of biochemistry, University of California, has concluded experiments of several years' duration on the effects of climatic environment, with special reference to temperature and humidity upon the growth and metabolic activities of the rat. The work was

undertaken to check in a more precise way his previous reported work on the effects of tropical climate on the behavior of man.

*Cholesterol.*—In an experimental study Professors F. E. Blaisdell and Dr. L. R. Chandler of the Laboratory of Surgical Research, Stanford University Medical School, have found that a continued hypercholesteremia in the rabbit and dog results in deposits of cholesterol containing fat in the mucosa and submucosa of the gall bladder provided the cystic duct is patent. Since the deposits of cholesterol in the wall of the gall bladder are dependent upon the absorption of this substance from the bile no cholesterol-containing fat was found when the cystic duct was ligated.

*Hemochromatosis.*—Hemochromatosis, a disease in which an extraordinary deposition of iron containing pigment together with other pigments is found in practically all organs including the skin, remained until recently an unsolved problem. Professor E. M. Hall and Mr. E. M. Butt of the department of pathology, Stanford University Medical School, in confirming the work of Mallory, have produced in the liver a condition in many respects similar to that observed in human hemochromatosis by poisoning rabbits with copper. Observations of Doctors T. L. Althausen and William J. Kerr of the department of medicine, University of California Medical School, suggest that this disturbance of the pigment metabolism may be restored to normal with insulin.

*Cancer Study.*—The organization of a cancer division at the Pasadena Hospital under the direction of the well-known investigator, Dr. Montrose T. Burrows, formerly of the Barnard Free Skin and Cancer Hospital, St. Louis, promises great developments in research into the causes and treatment of malignant tumors. Cancer which is not a disease of itself is probably only one type of change which the body suffers in the abnormal aging of its parts. Doctor Burrows has shown that it can be induced by producing hyperfunction of any organ. Furthermore, experimental studies dealing with the relationship between infection and cancer have shown that cancer stands at one end of the scale and infection at the other.

### 3. FUNDAMENTAL INVESTIGATIONS DEALING WITH BIOLOGICAL PHENOMENA

Without a thorough knowledge of the mechanisms of biological phenomena the many problems in medicine cannot be solved. It is therefore not surprising that the medical institutions of today participate more and more in the elucidation of general physiological and biochemical phenomena as observed in the animal kingdom. It is this group of studies which deserves some consideration.

*Allergy.*—Hypersensitiveness or allergy offers many fascinating problems. Professor W. H. Manwaring and his associates, Messrs. J. L. Azevedo and H. C. Torbert of the department of bacteriology and experimental pathology, Stanford University, report on experiments with Maignon's fraction of anaphylactic blood. They were able to confirm the findings of this investigator that the acquired hypersensitiveness in dogs



may be transmitted by the proteose-peptone-amino-acid fraction of anaphylactic blood. However, the symptomatology and autopsy findings are not those of typical anaphylaxis. Maignon's product when used by special experimental methods probably induces not a true passive anaphylaxis but some atypical phenomenon of hypersensitiveness. Professor Manwaring has also observed that horse proteins injected intravenously into normal dogs are so completely denatured by the end of four days as to lose their original antigenic properties. Contrary to expectations from current immunological theory, the denaturization is slower in immune dogs, rarely being complete before the sixth day.

*Anaphylactic Shock.*—Messrs. F. R. Van de Carr and O. B. Williams of the department of bacteriology, University of California, have extended their previous observations on the influence of heparin on the anaphylactic shock in the guinea-pig. Again, it was found that when heparin is injected into the circulation in an amount sufficient to prevent during twenty-four to forty-eight hours or longer the formation of a blood-clot, the anaphylactic syndrome, determined by very sensitive methods, was prevented in 60 per cent of the sensitized guinea-pigs if the dose was injected previous to the application of the shocking dose. Furthermore, the inhibitive action of heparin can be removed if the colloidal balance of the blood has been disturbed by a previous injection of heterophile antigens or 2 per cent sodium citrate solution. This observation suggests that in the guinea-pig the cause of the anaphylactic symptoms is probably governed by physicochemical disturbances in the colloidal balance of the blood leading to a coarser dispersion. The same explanation may apply to the experiments of Professor Claus W. Jungeblut of the department of bacteriology and experimental pathology, Stanford University, which showed that the intravenous injection of 0.02 gram of neoarsphenamin into actively and passively sensitized guinea-pigs, if given fifteen to twenty minutes before the reintroduction of the specific antigen, was capable of saving approximately 50 per cent of the animals from fatal anaphylactic shock.

*Tuberculin Reaction.*—According to Messrs. F. R. Van de Carr and William R. Lyons of the departments of bacteriology and anatomy, University of California, "Tutocain," a trade name for the hydrochlorid of p-amino-benzoyl-di-methyl-amino-methyl-butanol, protects tuberculous guinea-pigs against a fatal dose of tuberculin, provided the local anesthetic is injected at least thirty minutes prior to the application of the tuberculin. It is not unlikely that the local edema favors a gradual but progressive desensitization and thus protects the animals from a fatal reaction. Intimately related to these phenomena are the studies by Dr. S. H. Hurwitz of the department of medicine, Stanford University, and Miss P. Schoenholz of the Hooper Foundation on the mechanism of passive transfer of human hypersensitiveness, bacterial allergy and the mechanism of skin tests in hay fever and asthma as well as

those by Doctors Robert W. Lamson and Gordon Alles of the Allergy Clinic of Dr. George Piness at Los Angeles on the specificity of the intracutaneous pollen test in man.

*Compensatory Hypertrophy.*—For a number of years Doctors T. Addis, L. L. and E. M. Mackay of the department of medicine, Stanford University Medical School, have made a study of the factors involved in the process of "compensatory hypertrophy." In the albino rat, after the removal of one lung the remaining lung showed an average increase of more than 40 per cent, while the removal of one adrenal gland is followed by hypertrophy of the cortex of the remaining gland. Preliminary to a systematic investigation of the well-known hypertrophy of the remaining kidney following unilateral nephrectomy by new methods the same workers have collected important observations on the influence of such factors as age, sex, food variations (protein, sodium, phosphate), etc., on the kidney weight. In the course of these studies the important fact has been established that in the rat the kidney weight-body surface ratio is constant at all ages while the kidney weight-body weight and the kidney weight-body length ratios vary at different ages. Furthermore, sex, like age, determines the renal weight; the female rat has less renal tissue per unit of body size than the male rat.

*Recovery Oxidation After Muscular Exercise—Pregnancy Demands.*—Contrary to the hypothesis of A. V. Hill, Professor E. G. Martin and Doctors Field and Hall of the department of physiology, Stanford University, have found that the recovery oxidation following muscular exercise cannot be attributed to a specific dynamic action of the increased blood lactates. Some other explanation for the recovery phenomenon must be sought, since high concentrations of blood lactates induced by physiological means were either not attended by any increase in oxygen consumption or the increase was slighter and less persistent than in typical examples of recovery oxidation in which blood-lactate concentration was no greater. Professor J. R. Slonaker of the department of physiology, Stanford University, reports that rats, virgin throughout life, show much more voluntary activity than rats bearing young, even though the latter were relieved of caring for and nursing the young after birth. Breeding rats consume more food than virgins, thus showing that the energy requirements of periods of childbearing exceed those of equivalent periods of voluntary bodily activity.

*Sympathetic Function in the Esophagus.*—The dual origin, from the superior cervical and thoracic ganglia, of the sympathetic function in the esophagus of pigeons has been studied for the first time by Professor P. J. Hanzlik and Dr. E. M. Butt of the department of pharmacology in the Stanford University Medical School. Striking and interesting responses to many drugs have been noted; for example, the contracted esophageal muscle can be relaxed or reversed by drugs and conditions physically and chemically different and which of themselves cause contraction. How-



ever, the same drug or stimulus cannot oppose its own action. For the relief of esophageal spasms epinephrin is therapeutically indicated.

*Spinal Cord Pathways—Eye Innervation.*—A number of other reports on neurological studies should be mentioned, but they cannot be briefly summarized. Professor W. F. Allen, department of anatomy, University of Oregon Medical School, has located in the spinal cord the pathways by which are conducted impulses from the cerebrum and superior colliculus and which affect respiration. Professor O. Larsell of the same department analyzed the innervation of the pleura pulmonalis; Messrs. O. L. Huddleston and H. E. de Feo of the department of physiology, University of California, investigated the reciprocal innervation of antagonistic eye muscles of dogfish; and Professor F. W. Weymouth explored the foveal region of the retina in respect to visual acuity in order to throw light on the mechanism of control of eye movements.

*Biochemical Studies—Amino-Acids; Calcium Fractions; Calcium Phosphorus Magnesium.*—Biochemical studies by Professor J. M. Luck of the department of chemistry, Stanford University, with the aid of a new method indicates that the oral administration of amino-acids to rats causes increases of varying magnitude in the amino-acid content of the liver, but no appreciable change, except in the case of glycine, in the amino-acid content of the muscle. Furthermore, since the administration of insulin to normal animals induces a lowering in the amino-acid content of the blood, liver, etc., it is suspected that insulin hypoglycemia induces a compensatory increase in the rate of glucogenesis from amino-acids. Professor C. L. A. Schmidt and his associates, Drs. D. M. Greenberg and Kirk of the department of biochemistry, University of California, have shown that sodium and barium salts of certain amino-acids behave as strong electrolytes. This is also true for sodium caseinate. Barium caseinate, on the contrary, is abnormal in its behavior, indicating therefore the presence in such solutions of complex ions. The same workers have determined the dissociation constants of serine, valine, isoleucine, and oxyproline. According to Dr. D. M. Greenberg and Mr. H. E. Ballard of the same department the diffusible and nondiffusible calcium fractions in various pathological sera may vary, but the spinal fluid calcium remains constant. This seemingly indicates that spinal fluid calcium does not represent a true diffusate. Professor Schmidt and Mr. H. Goss are studying the calcium, phosphorus and magnesium metabolism in rats during the period of pregnancy and lactation. A storage of calcium begins immediately after the onset of pregnancy and in amounts which indicate that adequate provision is not only made for the fetus, but also in anticipation of the period of lactation at which time there is a very heavy demand upon the body for calcium and phosphorus.

*Oxidation-Reduction Potentials.*—Professor J. P. Baumberger of the department of physiology at Stanford University has developed an

electrometric method which promises to be of importance as an aid in determining the oxidation-reduction potentials of the irreversible reactions by which energy is liberated in living tissues.

*Insulin Substitutes.*—Synthalin and glukorment, substitutes for insulin recommended by European workers, are, according to Doctors N. R. Blatherwick and F. Bischoff of the Santa Barbara Cottage Hospital, useless in the treatment of diabetes. The lowering of the blood sugar and the sugar in the urine, incident to taking these drugs, is probably due to liver damage which prevents the change of protein into sugar rather than the burning of sugar itself.

#### 4. RESEARCH IN THE TREATMENT OF DISEASE

Observation and experiment in the treatment of disease form a great and essential part in medical research. Only a few of the achievements can be mentioned.

*Buccal Infections.*—A troublesome infection of the buccal cavity transmitted by dust and occasionally occurring in epidemic form among newborn infants, according to Dr. Harold K. Faber and Dr. E. B. Clark of the department of pediatrics, Stanford University School of Medicine, can be effectively cured by an application of gentian violet.

*Bismuth and Syphilis.*—In search for effective antisyphilitic remedies, Doctors H. G. Mehrtens and P. J. Hanzlik, professor of medicine and pharmacology respectively, and Messrs. D. C. Marshall and N. S. Brown have adopted a program of clinical and experimental studies with bismuth and its compounds. Regardless of the preparation used, bismuth injected intramuscularly in man is absorbed and a portion excreted through the kidneys, but a considerable amount which is stored in the body can be mobilized in the blood stream by hot baths and vaccines. No evidences of toxicity from metallic bismuth have been encountered among one hundred individuals receiving a total of 1500 injections irrespective of the considerable amount of bismuth which may be stored in the body.

*Balantidium Coli Infections.*—Spontaneous *Balantidium coli* infections of guinea-pigs may, according to Miss M. Sweeney of the Hooper Foundation, in a high percentage of instances be cured with tryparsamid and stovarsol. The latter preparation has also been successfully employed by Dr. H. E. Butka, associate professor of pathology, College of Medical Evangelists, Los Angeles, in the treatment of a group of medical students infested with protozoan parasites.

*Cancer—Low Protein Diets—Liver Treatment—Subcutaneous Blood Transfusions.*—Promising results in the treatment of cancer are reported by Doctors H. J. Ullmann, N. R. Blatherwick and F. Bischoff of the Santa Barbara Hospital with a colloidal lead phosphate of low toxicity. Dr. W. D. Sansum of the same institution has discovered that the elimination of fat from the diabetic diet and the use of high carbohydrate diets in the treatment of diabetes are just as



important as the use of insulin. According to Doctors F. R. Nuzum and Sansum the use of diets low in protein has in over one thousand cases resulted in a reduction of the abnormally high blood pressure and a marked improvement in all with the exception of a very few whose blood vessels and kidneys were damaged beyond repair. Professor A. L. Bloomfield of the department of medicine, Stanford University Medical School, has successfully treated cases of sprue with raw liver and with the Minot-Murphy liver extract, which is now generally employed in the cure of pernicious anemia. In this connection it is of interest to note that Doctors William J. Kerr and E. H. Falconer of the University of California Hospital have observed a patient with a very marked anemia; due to *Dibothriocephalus latus* to respond to the liver treatment. This is probably the first evidence of the action of the liver extract on this type of anemia. Since Professor O. Larsell and Doctors N. W. Jones, B. I. Phillips and H. T. Nokes of the University of Oregon Medical School have observed that injected nuclei of red blood cells and nucleic acid stimulate the blood-forming organs, they conclude that the nucleoprotein, and not a special hormone, is the active substance of the beef liver. Subcutaneous blood transfusions, according to Dr. C. M. Moore of the Collin's Nutritional Research Laboratory, University of Oregon Medical School, are just as effective as intravenous transfusion and, since the dangers of hemolysis and agglutination are eliminated, the method is safe and deserves more universal use.

*Surgery in Tuberculous Abscesses.*—In surgery Professor E. Holman, department of surgery, Stanford University Medical School, has demonstrated on dogs that by the use of an atraumatic technique of closing the bronchus, lung lobes containing tuberculous abscesses may be removed successfully.

*Salicylates—Ephedrin Substitute.*—Doctors C. C. Johnson and P. J. Hanzlik and Mr. M. A. Seidenfeld, department of pharmacology, Stanford University Medical School, have investigated the pharmacology of ammonium salicylate and synthetic salicyluric acid. The ammonium salicylate possesses more marked diuretic and metabolic effects with no greater toxicity than other salicylates. However, its fate in the body is different owing to the destruction of the ammonium ion. Salicyluric acid, a conjugation product of salicyl and glycocoll, is relatively inert. Phenylethanolamin, a substitute for ephedrin, recently synthesized by Dr. Gordon Alles in the clinic of Dr. George Piness of Los Angeles, resembles in its action tyramin and ephedrin. According to Dr. W. L. Tainter, department of pharmacology, Stanford University Medical School, it is an effective drug in causing shrinkage of the turbinates and nasal mucosa. In the treatment of bronchial spasm it is less effective, but as a depressor agent it has more desirable qualities than epinephrin and ephedrin.

*Morphin Substitute.*—According to Dr. F. W. Lynch, department of gynecology and obstetrics,

"Allonal" = Allyl-isopropyl-barbituric acid-amino pyrin is an excellent substitute for morphin in postoperative therapy. This drug when given for a period of two or three days reduces the incidence of postoperative vomiting and almost entirely eliminates abdominal distention following operations.

*Comment.*—As already stated in the introduction this report is incomplete, but it gives an outline of the progress which has been made in research in medicine on the Pacific Coast during the year 1927-1928.

Hooper Foundation, University of California.

## THE RADICULAR SYNDROME IN HYPERTROPHIC OSTEOARTHRITIS OF THE SPINE\*

By LEWIS GUNTHER, M. D.†  
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DISCUSSION by James F. Churchill, M. D., San Diego; Milton B. Lennon, M. D., San Francisco; Howard H. Markel, M. D., San Francisco; John Homer Woolsey, M. D., San Francisco.

SINCE von Bechterew's<sup>1</sup> original description of stiff spine associated with neurological symptoms and nerve root degeneration, much discussion has ensued regarding the classification of the various forms of spondylitis, and the neurological side of the syndrome has received inadequate attention.<sup>2,3</sup> The finding of nerve root degeneration by Rhein<sup>4</sup> in a case of *Spondylose rhizomelique* indicates that the neurological pathology is essentially alike in the various types of spondylitis and from the very nature of the process, nerve root symptoms should be present in the P. Marie and Strümpell, as well as in the Bechterew type. The experimental work of Nathan<sup>5</sup> lends further weight to this view and indicates that the various forms of spondylitis are merely accidents of localization of a process which is generalized. Subjective and objective disturbances should be present in all types.

### DEFINITION OF RADICULITIS

Dejerine<sup>6</sup> described radiculitis as an acute inflammation of the spinal roots, manifested by alterations of sensation or of muscle function which show by their distribution that the primary disease process producing them is in the spinal root (Fig. 1) and not in the tracts and nuclei of the cord or in a peripheral nerve trunk. The neurological syndrome described by Bechterew received little consideration, however, until the work of Sicard<sup>7</sup> on funiculitis and neurodocitis which associated osteoarthritis of the spine with the radicular syndrome. There are no criteria by which the neurodocitis or funiculitis of Sicard (extrameningeal involvement of the roots) can be distinguished from involvement of the intra-

\* From the Department of Medicine, University of California Medical School, San Francisco.

† Read before the General Medicine Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30-May 3, 1928.

‡ Read in abstract before the semiannual meeting of the Pacific Interurban Clinical Club, December 16, 1927.



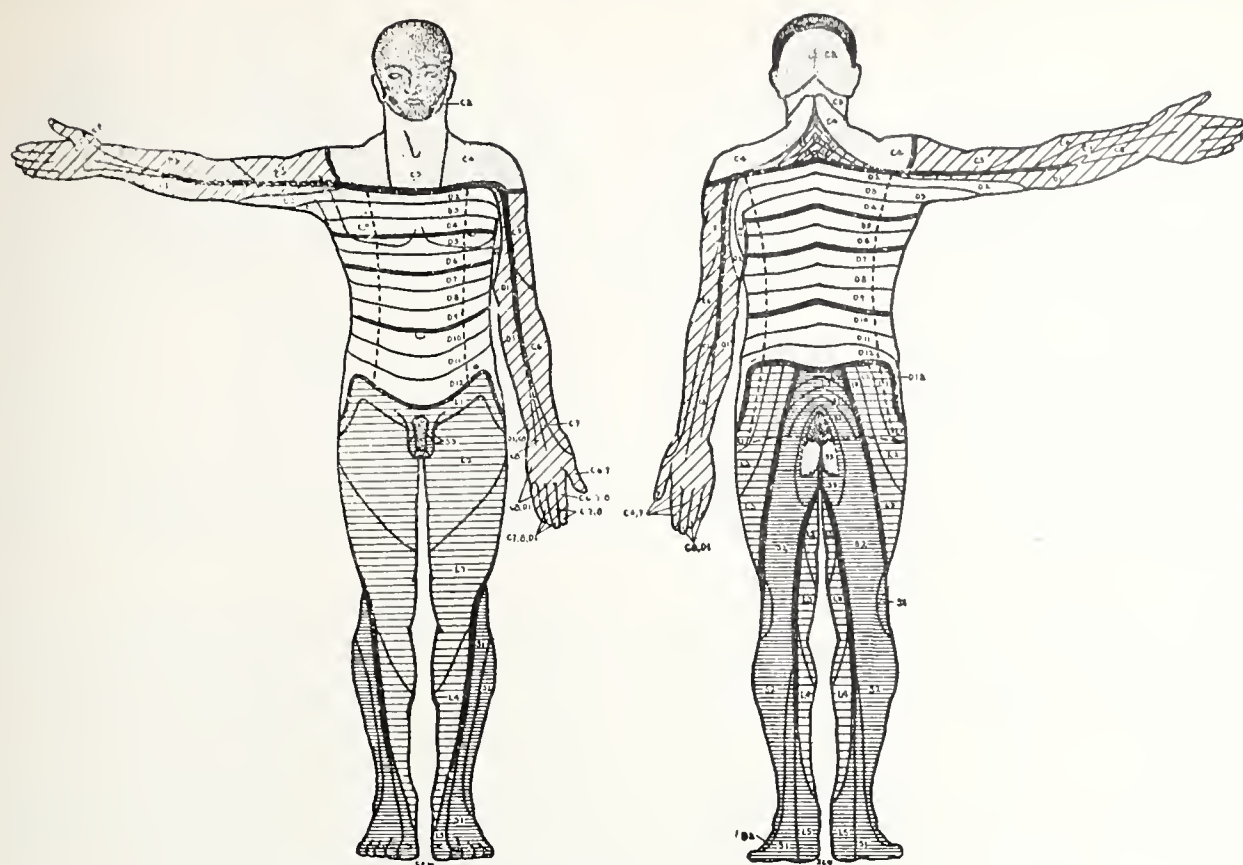


Fig. 1.—Radicular sensory innervation (from Mayer, J. A. M. A., 1918).

meningeal portion of the root<sup>8</sup> since affection of either part will be manifested as a radicular disturbance (Fig. 1). The author, therefore, uses the term "radicular syndrome" to include the funiculitis and neurodocitis of Sicard.

A root type of altered sensation or motor power is not distinctive in itself as it occurs as a part of the picture in many diseases of the spine. That it occurs in osteoarthritis of the spine and is due to nerve root involvement either by meningeal reaction secondary to the osteoarthritic process, or to pressure in narrowed canals, has been recognized clinically and described by the French, and shown experimentally by Nathan.<sup>5</sup> Even as late as 1922 Bassoe,<sup>9</sup> professor of neurology at Rush Medical College, in discussing nerve syndromes and osteoarthritis of the spine as a cause of sciatica, lumbago, cervical, brachial and intercostal neuralgias, called attention to the appalling lack of objective observations. Rosenheck,<sup>10</sup> in 1924, pointed out that radicular pains and spondylitis are related. He mentioned objective sensory changes but did not state their nature. Mayer<sup>11</sup> pointed out that there may be no sensory changes in the early stages of radiculitis, and, later, disturbances consist of alteration of light touch. Osteoarthritis of the spine is a common disease, indeed, and from the very nature of the process radicular manifestations should be present.<sup>5 10</sup> Sensory changes of a radicular nature to light touch should also be present.

#### CLINICAL HISTORY

In the medical out-patient department and wards of the University of California Hospital, studies were conducted on patients whose complaints suggested a root distribution. In the chief complaint the patient would outline the painful

area of a root to a degree which seemed uncanny in its topographical accuracy. When questioned, the past history would bring out other areas not complained of at the time, and these, too, the patient would outline accurately. The demonstration was just as consistent when one delved into the past history of so-called silent cases in which moderate to marked hypertrophic changes without subjective complaints were found by x-ray examination. Thus, in either event, a story of progression of involved areas over a number of years was formed and a record of subjective root areas obtained which, in many cases, was sufficiently accurate in itself to point the levels at which a pathological process would be anticipated in the spinal vertebrae.

#### PROCEDURE IN EXAMINATION

Sensory examinations were conducted on all patients with the cotton-tuft on a wooden applicator, and in a number of patients with the pin point, heat, cold and pinching. One or two areas would be selected at a given examination, usually the area of chief complaint. Other areas were left for examination at another time. This procedure was adopted because of the ease with which patients fatigue to examination of light touch. Several examinations were necessary if the entire available sensorium was to be examined.

Sensory changes were, for the most part, bilateral in distribution. Hyperesthesia, hypesthesia, or anesthesia to cotton-tuft were the most common findings. When hypesthesia to cotton-tuft was marked, changes to pin stroke were also found, moderate hypesthesia being the common change and, less frequently, anesthesia. Changes to heat and cold in a given case were in the same

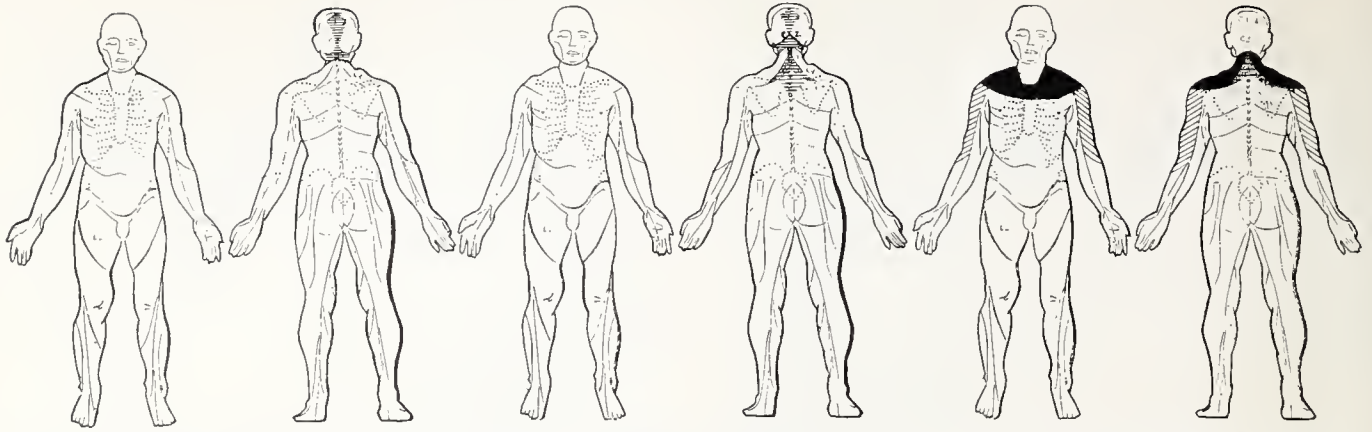


Fig. 2.—Radicular distribution, cervical 1, 2 and 3; occipital and vertex "headache."

Fig. 3.—Radicular distribution, cervical 1, 2 and 3; cervical 5 to 7; occipital and vertex "headache"; and back of the neck.

Fig. 4.—Radicular distribution, cervical 4, painful shoulders; cervical 5 to 7, back of the neck.

direction as those elicited with cotton-tuft or pin. Changes to thermal sensation could sometimes be demonstrated when the patient fatigued to cotton-tuft, or when the changes to the latter were not found or were so slight as to enter the element of uncertainty.

Hyperesthesia to cotton-tuft was the common finding in patients with complaints dating within one year. Occasionally a patient with symptoms of many years duration would suffer an acute attack in a given area, and these patients also showed hyperesthesia when the exacerbation was of less than one year's duration. In the areas supplied by the lower cervical roots and the lower lumbar and upper sacral roots, one found occasional hyperesthesia in patients with symptoms of more than five years duration. Hypesthesia to cotton-tuft was the common finding in patients whose symptoms extended beyond a five-year period and occasionally could be found in cases extending beyond three and four years. Marked hypesthesia to cotton-tuft, anesthesia to cotton-tuft, and hypesthesia to pin stroke were generally found in patients with symptoms of over five years duration and rarely in patients with symptoms of between three and five years duration. The *A* and *B* pinching tests of Carnett<sup>12</sup> were not used in a sufficient number of patients to warrant conclusions.

Sensory disturbance varied from a small area of hyperesthesia to a dulled sensorium to light touch over most of the body. Such alterations in light touch were found constantly and it became possible, after a number of examinations, to chart out the entire body and to anticipate the spinal vertebrae which would show pathological processes.

#### COMPLAINTS, IN ORDER OF FREQUENCY

In order of frequency the chief complaints consisted of pain, aching, soreness, stiffness, paresthesias (burning, numbness, tingling, heaviness, weight), dizziness, cramps and tenderness. Pain was described in various ways according to the language ability of the patient. Aching was of a dull character and the soreness was either heavy or light. The outstanding complaints were pain, aching, soreness and stiffness respectively. The regions complained of, according to frequency,

were an area immediately over the sacrum with radiation over the root distribution, commonly spoken of as sciatica (Fig. 10), or localized pain over the sacrum (backache) concomitant with pain on the inner side of the legs (Fig. 9); an area over the back of the neck (Fig. 3); side of the neck and shoulders (Fig. 4); over the occiput and vertex (Fig. 2); upper abdomen and epigastrium with radiation to the back (Fig. 6); lower abdomen with radiation to the back or from the back (Fig. 7); and the precordium with radiation to the left inner arm (Fig. 5). Symptoms referred to the roots which make up the great nerves of the lower and upper extremities were outstanding. Although the patient would complain of one side more than the other, bilateral involvement was quite a constant finding, the right side receiving more attention in the abdomen and the left side over the upper chest. Questioning would sometimes be necessary to bring out the bilateral nature of the symptoms.

#### CARDINAL SYMPTOMS

The cardinal symptoms were pain, aching and soreness induced or aggravated by movement of the spinal vertebrae, associated most commonly with sneezing, straining at stool and coughing (Dejerine's sign); rising after a sitting position; raising the head on awakening; getting out of bed; walking; sitting in one place for any length of time; change of position; and lifting. Pain at night which would awaken the patient was a striking feature and was relieved by change of position. Inability to sit up in bed from a supine position without producing pain and the necessity of rolling out on one side or the other were also characteristic. Many of the patients preferred a hard bed, obtaining most rest when lying flat on the back. The wearing of a corset or strapping, also heat and massage, gave relief.

It became apparent from the widespread nature of the complaints that involvement at various roots of the spine could cause subjective sensory disturbances which appeared to be due to visceral disease, and herein lies the importance of recogni-



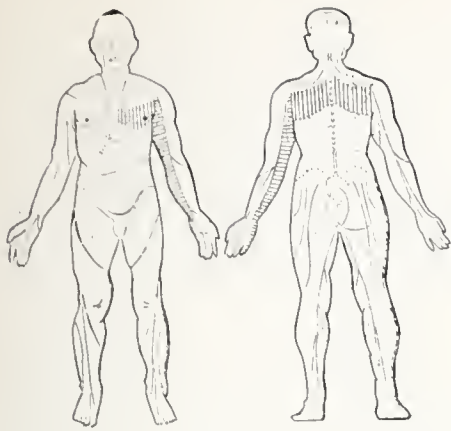


Fig. 5.—Radicular distribution, dorsal 2 to 5, "pseudo-angina pectoris."

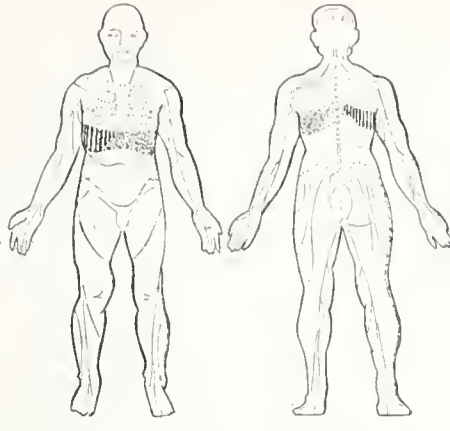


Fig. 6.—Radicular distribution, dorsal 6 to 9; area of referred gall-bladder pain on the right; gastric disturbances and pancreatitis.

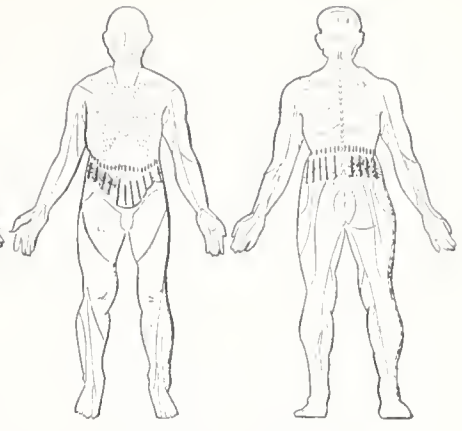


Fig. 7.—Radicular distribution, dorsal 10; belt-like pains as in tabes; dorsal 11, 12 on the right; area of referred pain from acute appendicitis, and on the left, area of referred pain from adnexal disease.

tion of the radicular syndrome which is based on osteoarthritis of the spinal vertebrae.

#### SYMPTOMS OF SECOND AND THIRD CERVICAL INVOLVEMENT

*Headache* (Fig. 2), described as a dull ache, soreness and burning at the occiput on either side or both sides, shooting to the vertex or around the side of the head to the temples, was complained of when the second or third cervical vertebrae, or both, were involved. At the vertex there was a feeling of piercing pain, tenderness, soreness, burning, or of a dull aching. Sudden movements and raising the head on awakening were the common aggravating factors. Dejerine's sign was usually positive. Audible crepitations in the neck on movement were frequently noticed. There would be a tendency for the chief complaint to disappear after the patient got up and about in the morning.

#### SYMPTOMS OF FOURTH TO SEVENTH CERVICAL INVOLVEMENT

*Painful shoulders* (Fig. 4) or aching and soreness on the outer side of the neck, and pain, aching, soreness and stiffness up and down the back of the neck (Fig. 3) were complained of when the fourth, fifth, sixth or seventh cervical vertebrae were involved. The pain radiated down the outer part of the arms, often to the base of the thumbs, and occasionally paresthesias in the fingers in the form of tingling and numbness were part of the picture. When the shoulder joint was also the seat of arthritic changes, shoulder crepitation was an added symptom. To the laity the condition of painful shoulders is commonly known as neuritis, neuralgia or sore arms. In the older literature particularly, one finds the names "idiopathic brachial neuritis" and "neuralgia," and the comment that the disease occurs frequently in people with "gouty diathesis."<sup>13 14</sup> The shoulder joint also receives considerable undeserved attention because the pain is referred to this area. When the anterior roots are involved, ulnar and radial nerve injuries must be differentiated. Con-

fusion with the muscular atrophies involving the shoulder girdle have been reported.<sup>15</sup>

#### SYMPTOMS OF SECOND TO FIFTH DORSAL INVOLVEMENT

*Heart disease* occupies the attention of the patient when the second to the fifth dorsal vertebrae are involved, and the physician too is apt to be misled by complaints of pain and aching over the precordium with radiation in an anginoid manner toward the shoulder, to the armpits, and down the inner side of the arm, often to the small finger (Fig. 5). In introspective individuals a certain amount of tachycardia and fear of breathing are concomitant sensations. Soreness, paresthesias such as numbness and burning, are also noted. The physician recognizes the exaggerated apprehension of the patient and there is simulated the picture of the neurotic, or irritable heart or, if the attack is severe, angina pectoris. Unlike the patients with angina pectoris, however, the blood pressure of the patients in this series was within normal limits or somewhat low, and other evidence of vascular disease was absent. These patients get little relief from the usual symptomatic treatment, their complaints are persistent, they see many doctors, and it is not unusual to find that they have been labeled as neurotics or classed under other "waste basket" terms. The outstanding feature of this syndrome, however, is aggravation or onset of symptoms with movements of the spine even when the patient is at rest, such as sitting in a chair, or being awakened at night by pain. These night pains are often relieved by change of position. Kilgore,<sup>16</sup> under the title of "angina pectoris and pseudo-angina pectoris," reported a study of 253 cases with precordial pain. In this group 107 were over age 40. He noted that in the normal group the most common type of precordial pain depended on certain movements of the left arm, position in bed, etc.

When the symptoms in the upper chest are most severe on the right side and Dejerine's sign to coughing and sneezing is positive, the condition may be diagnosed as tuberculosis or pleurisy. If the patient is a woman in the cancer age, she, and the physician too, focus considerable attention on

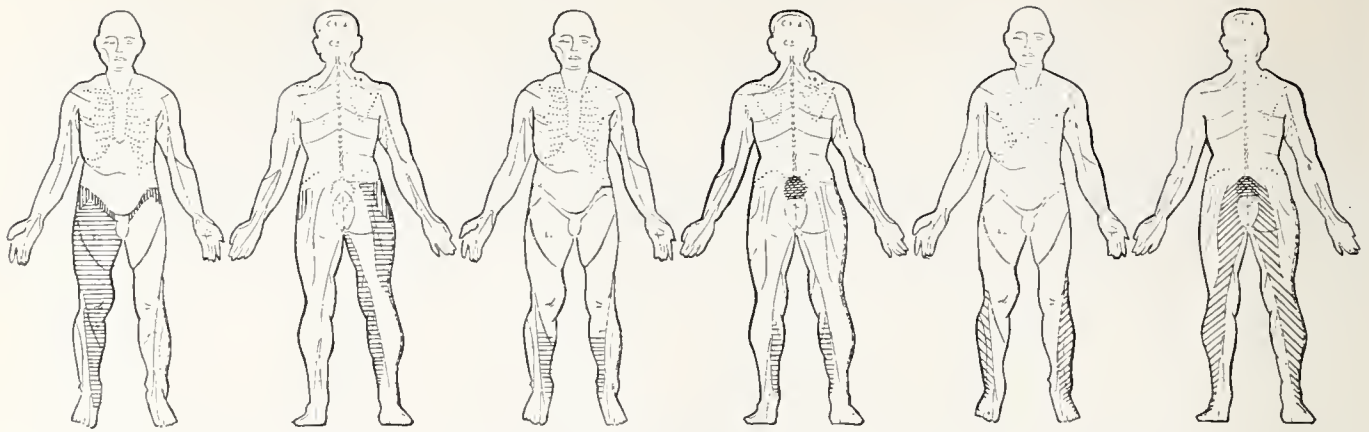


Fig. 8.—Radicular distribution, lumbar 1, 2, 3, 4; meralgia paræsthetica, hip-joint and knee-joint disease.

Fig. 9.—Radicular distribution, lumbar 4, 5, sacral 1, over the sacrum, lumbar 4, inner side of legs.

Fig. 10.—Radicular distribution, lumbar 4, 5 and sacral 1, over the sacrum with radiation over sacral 1 and 2, commonly spoken of as "sciatica."

the breasts and surgery for the removal of a "pea-sized" benign cyst may be the result. Cases of each of these have occurred in this series.

#### SYMPTOMS OF SIXTH TO NINTH DORSAL INVOLVEMENT

Osteoarthritis of the sixth, seventh, eighth and ninth dorsal vertebrae causes pain, burning, tingling, heaviness, pressure, stabbing and "gas" in the epigastrium (Fig. 6), and the patient associates these symptoms with the digestive apparatus. Three patients in this series first consulted gastroenterologists and surgeons for such conditions.

Involvement over the same area, with manifestations greater on the right side, produces pain or aching over the right upper quadrant with radiation along the ribs to the shoulder blade, or across the abdomen. This area covers the topographical distribution of dorsal roots six to nine and is the same area over which pain from a diseased gall bladder is referred (Fig. 6). Pain in this area requires a differential diagnosis from disease of the gall bladder. Osteoarthritis of the spine with radicular distribution of pain may perhaps account for the large percentage of gall-bladder operations which fail to give relief. Muller,<sup>17</sup> in a discussion of the noncalculus gall bladder, pointed out that from 30 to 40 per cent of patients still complain of symptoms after operation. He urges against the diagnosis of gall-bladder disease on threshold symptoms, and against surgery of this organ in the absence of *gross demonstrable* lesions as shown by cholecystography and other methods. The findings in this series indicate the necessity of a very careful analysis of each case and the presence of osteoarthritis of the spine, when the symptoms of gall-bladder disease are not outstanding, should be given careful consideration. In this series are cases in which visceral disease and osteoarthritis with radicular symptoms coexisted. The trains of symptoms produced by each could be separated without great difficulty.

#### SYMPTOMS OF TENTH TO TWELFTH DORSAL INVOLVEMENT

When the tenth to the twelfth dorsal roots are affected, the appendix receives considerable attention on the right (Fig. 7), and in women the

tubes and adnexa if symptoms are greatest on the left. Pain, aching and stabbing (the latter usually in the right lower quadrant) which may or may not be referred to or from the small of the back are common complaints. If the existence of pain referable from a distant source with origin in the spine is kept in mind in the differential diagnosis of this area, the diagnosis of appendicitis in patients over 35, will not be made on minimal symptoms in the absence of the order of occurrence of symptoms, as stressed so strongly by the late John B. Murphy.<sup>18</sup> A careful history will bring out the relation of pain to movement, and other areas not complained of will be discovered.

#### SYMPTOMS OF UPPER LUMBAR INVOLVEMENT

Pain, burning or aching starting over the upper part of the thigh at or behind the iliac crests, or at the sides of the thigh with radiation into the area over the inguinal ligament, or downward across the front of the thigh to the knee (Fig. 8) were complained of when the osteoarthritic process was localized in the upper lumbar vertebrae. Rosenheck<sup>19</sup> considers osteoarthritis in this region as a cause of meralgia paræsthetica. When the radiation is confined to the upper part of the thigh, the condition may be confused with hip-joint disease. Such pain, as in the shoulder region, is too often ascribed to arthritis of the neighboring joint. In our cases the *fabere* sign, as suggested by Patrick,<sup>20</sup> was noted and such cases were not included unless the complaints and sensory changes were purely radicular in distribution. Localized pain over the sacrum was often present concomitantly with pain on the inner sides of the legs (Fig. 9). This is explained below.

#### SYMPTOMS BELOW THIRD LUMBAR INVOLVEMENT

Pain over the sacrum which radiated downward along the anatomical distribution of the first and second sacral spinal roots (Fig. 10) or localized pain over the sacrum associated with pain on the inner side of the legs (Fig. 9) was found when an osteoarthritic process was present anywhere below the level of the third lumbar vertebra. A similar condition and distribution was



found also when a sacralized transverse process of the fifth lumbar vertebra was present. Distribution of pain over the first and second sacral roots is commonly called sciatica (Fig. 10) and includes the cutaneous distribution of the posterior cutaneous nerve of the thigh (roots S1-2) and the peroneal division of the sciatic nerve (roots S1-2). Paresthesias, such as numbness and tingling over the posterior surface of the thigh and over the dorsum of the foot, were occasional symptoms.

Involvement of the anterior roots at this level will show a picture of absent or sluggish knee jerks, or of ankle jerks. The picture is difficult to differentiate from tabes, and one may be puzzled at the absence of characteristic spinal fluid and other serological confirmatory data. Two cases, not included in this series have been studied, in which altered knee kicks and considerable muscle atrophy were present. The electrical reactions showed a partial reaction of degeneration. Babinski<sup>21</sup> and Ganter<sup>22</sup> have reported similar cases under the heading "Pseudotabes Spondylosique." Sachs and Fraenkel<sup>23</sup> also reported a case without muscle atrophy. The findings were confirmed by laminectomy. Bassoe<sup>9</sup> also referred to the same condition and remarked on the fact that all cases with loss of knee kicks and ankle jerks are not due to syphilis.

#### SUMMARY

This study of the radicular syndrome is based on the analysis of the symptoms in thirty cases of spinal osteoarthritis. The syndrome consists of restricted mobility of the spine, root pain and root sensory alterations, produced or aggravated by movement and associated with Dejerine's sign.

Under the heading of "movement causing pain" may be grouped certain characteristic phrases of the patient, such as, rising from a sitting position; raising the head on awakening; getting out of bed; walking; sitting in one place for any length of time; sudden change of position while sitting or lying; lifting; stooping; straightening after having been bent over; inability to sit up in bed, and the necessity of rolling out of bed on one side. Under this category may be listed the reproduction of symptoms which sometimes occur during the physical examination, in determining the mobility of the spine.

Dejerine's sign is a term applied to the production or aggravation of symptoms of a root nature, by coughing, sneezing and straining, as at the stool. Under the last may be placed the tendency of the patient to support the body on the hands by placing them on the stool seat during the act of defecation—a purely mechanical protective mechanism. The induction or aggravation of symptoms by one of this triad is considered pathognomonic of the presence of a radiculitis.<sup>11</sup> When present it is a valuable sign. It does not, however, give a clue to the etiology. The presence of crackling in the neck or in other joints, during movement, Heberden's nodes and x-ray evidence of spinal osteoarthritis, when associated with Dejer-

ine's sign furnishes presumptive evidence of the etiological factor.

Pain at night which awakened the patient and necessitated a change of position for relief was a characteristic symptom. Although the patient complained of one side more than the other, bilateral involvement was the rule. Questioning was sometimes necessary to bring out the bilateral nature of the symptoms.

Lying flat on the back, or on a preferred side, a hard mattress, the wearing of a corset which adequately immobilized the affected spinal vertebrae, strapping and physiotherapy such as baking, heat and massage were measures which afforded symptomatic relief.

Radiculitis, by definition, is a disease process confined to the spinal roots. If the radicular syndrome is to be successfully recognized, a working knowledge of the cutaneous distribution of the spinal roots (Fig. 1) and a careful history are essential. The former is necessary to differentiate between processes which involve the peripheral nerve and the spinal cord substance from those which involve the nerve root, and the latter is required for an accurate interpretation of the symptoms. The necessity of an accurate history cannot be stressed too strongly.

In the present illness, it was commonly found that the patient outlined the roots involved in the chief complaint with anatomical accuracy. In the past history, however, areas which had been troublesome at some previous date, but symptomless at the time, were not always outlined clearly. In either event, it is important to determine the limits of each symptom-bearing area, and the extent of radiation of symptoms, because, in certain regions of the body, roots which are widely separated in the cord, supply adjacent cutaneous areas (note the heavy lines in Fig. 1). If this procedure is adopted, the information obtained will prove an ample reward for the additional effort spent. The charting of such areas, and a listing of the involved roots will tell a story of progression of symptoms over a period of years and from the chart and the table, the spinal vertebrae involved in the osteoarthritic process can be anticipated.

#### DIAGNOSIS

The diagnosis depends mainly on a good history in which the symptom-bearing areas have been accurately determined and their distribution compared to that of the spinal roots and the peripheral nerves. The radicular syndrome is characterized by the root distribution of symptoms. Sensory and motor alterations if elicited are also distributed according to the spinal root topography. The outstanding characteristic of this syndrome is the relation of symptoms to movement of the spinal column, and their association with Dejerine's sign. The presence of the latter is considered pathognomonic of radiculitis.

In the chief complaint a root or group of roots is usually outlined by the patient with great accuracy. It is this group of symptoms in the radicular syndrome of spinal osteoarthritis which is most



often confused with the pain of visceral disease. Over the left upper chest and inner side of the arm, it is the heart (Fig. 5), and over the right upper quadrant, the gall bladder (Fig. 6) which receive the concern of the patient and the attention of the physician. And not without reason, for it is over the same roots in their respective locations that pain from these organs is referred. However, the very definite relation of such root symptoms to movement of the spine and their association with Dejerine's sign, and the absence of the evidence necessary for the diagnosis of visceral disease in a given location, will indicate the presence of a radiculitis. The past history also helps greatly in the differential diagnosis from visceral disease, for in the syndrome associated with spinal osteoarthritis, it discloses involvement of other root areas accompanied by symptoms of a similar nature to those found in the chief complaint. The physical examination will reveal varying grades of restricted mobility in the spine. The sensory examination with the cotton-tuft when properly done will reveal alterations in sensations to light touch which correspond to the roots involved.

Having established the presence of a radiculitis, the diffuse, bilateral root involvement, the impaired mobility of the spine, the presence of crackling on movement, Heberden's nodes, and x-ray evidence of an osteoarthritic process, aids in establishing the osteoarthritic etiology of the syndrome.

The cutaneous root areas involved, as determined in the history, should correspond to the regions of the spinal column which showed impaired mobility on the physical examination. For example, symptoms over the lower abdomen between the umbilicus and the inguinal ligaments are due to involvement of the tenth to twelfth dorsal roots. Over the back, these roots supply the cutaneous area directly overlying the spinous processes of the lumbar vertebrae. The restriction in mobility should be present, however, in the lower dorsal region of the spinal column, since these roots emerge from the foramina between the ninth dorsal and the first lumbar vertebrae (Fig. 7). The data of the roots involved obtained from the history, and the restricted mobility of the spinal column found in the physical examination enables one to anticipate with considerable accuracy the vertebrae which will show involvement on x-ray examination.

#### COMMENT

Hypertrophic osteoarthritis of the spine is a common disease. It is conceivable that symptoms from nerve root involvement in this disease may be present as the sole cause of disability, in the absence of visceral disease, or it may coexist with visceral disease. In middle-aged adults, where *pain* is an outstanding symptom, a careful symptom analysis is necessary. If impaired mobility of the spine is present in regions which correspond to the cutaneous area of symptoms according to spinal roots, the radicular syndrome as an explanation of symptoms should be considered. If the radicular syn-

drome is found to be present, it should be accorded its proper place in the disease picture, since it may simulate many visceral diseases and in turn it may mask the presence of visceral disease which may not be outspoken in its symptomatology.

#### CONCLUSION

An analysis of thirty cases of hypertrophic osteoarthritis of the spine has been presented. Bilateral radicular sensory disturbances can be demonstrated which correspond to the vertebrae involved.

Spinal osteoarthritis, root pain and root sensory alterations are definitely associated in a clinical syndrome of pain dependent on motion of the spine, or upon relaxation of the supporting structures of the spine. The radicular syndrome of spinal osteoarthritis is characteristic enough in its manifestations to be recognized as such and to be differentiated from the visceral diseases which it may simulate, and from the visceral diseases which it sometimes masks by its outstanding symptom of pain.

I wish to express my appreciation to Dr. William J. Kerr for his invaluable assistance and encouragement in this work.

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#### DISCUSSION

JAMES F. CHURCHILL, M. D. (1310 Medico-Dental Building, San Diego).—I heard Doctor Gunther give a preliminary report on this work a few months ago. I was so impressed by it that I urged him to present it before this section. I feel that this is one of the most valuable papers we have heard in this section for a long time. It has been my observation that internists and general practitioners are either unfamiliar with the radicular syndrome, or else give it little thought in differential diagnosis. Orthopedists have known about it for a long time. Neurologists are apparently quite familiar with it, but the men in general medicine and general surgery seem quite unaware of the frequency and importance of this group of symptoms. I believe that in consultations I have seen more errors in diagnosis from a failure to differentiate pain from this source from that of visceral origin than from any other one cause. We have all seen appendices and gall bladders removed for the relief of persistent pain, and have noted that many of these patients did not experience the relief which had been promised and expected. If these cases are carefully examined it will be found that in many instances the pain is due to a radiculitis.

Strangely enough, textbooks of medicine make no mention of radiculitis. In the differentiation of radiculitis from intra-abdominal pain one little test is of great help. Tenderness or pain from radiculitis is elicited fully as well by picking up and gently pinching the skin and subcutaneous tissue as it is by pressure, while pain and tenderness of visceral or peritoneal origin is only produced by pressure.



MILTON B. LENNON, M. D. (384 Post Street, San Francisco).—One can hardly estimate the amount of time and patience that Dr. Gunther employed in carefully working up the material for his paper. While he had gone much into the literature, he can well claim a certain originality since he had quite thoroughly completed his work before he found that earlier and almost forgotten labors had been done in the same field.

We have all known that root pain is a very common symptom of vertebral arthritis, but little have we realized that root involvement could be clearly demonstrated in an objective way. The present *arbeit* has clearly shown this to be so. However, one must realize that such changes are not marked and that the most painstaking care is necessary to demon-

strate them. The utmost attention and extreme application on the part of the examiner are required.

Fortunately Dr. Gunther has the latter requirement and hence we have his striking contribution to our knowledge of radiculitis.



HOWARD H. MARKEL, M. D. (384 Post Street, San Francisco).—This is not by any means a "radiculous syndrome" as some of Doctor Gunther's confrères have jokingly called it. It may be new to internists but it has been known by neurologists and treated by orthopedists for years.

Probably the pathology has not been definitely established until recently, but the fact that osteoarthritis of the spine could refer pain into various parts of the body has been well established. But the exact mechanism by which this occurs has been difficult of proof. However, Putti of Bologna in recent years has established the fact that there is an extension of the inflammatory reaction from the edges of the articulations of the spinal vertebrae into the intervertebral foramina, causing inflammation of the nerve roots.

Peculiarly enough these osteoarthritic changes occur in certain or definite regions of the spinal column, and they are localized there by the factors of mechanical strain due to the upright position of man. In the infant the vertebral column is practically straight, but as he assumes the upright position, the weight of the body causes a primary curve forward in the lumbar region. This is followed by the development of secondary curves forward in the cervical and coccygeal regions, with posterior curves between, so that the column becomes a series of curves.

Due to the effect of mechanical strain and excess of movement at these points arthritic changes become localized at three places. In the order of their frequency:

First, Lower Cervical.—This causes referred pain from the occipital regions of the head and neck into the shoulders and down the arms and is popularly called "neuritis." There is another common cause of so-called neuritis and that is a bursitis of the subdeltoid bursa and the two conditions must be carefully differentiated, for the treatment is very different in the two conditions.

Second, Lumbosacral Region.—This is a favorite position for arthritic changes which cause symptoms commonly called lumbago and sciatic rheumatism.

The third and least common place is in the region of the dorsi lumbar junction. Here the pain is referred to the region of the lower abdomen usually and frequently simulates a chronic appendix or salpingitis.

I remember one man who had had four laparotomies for right abdominal pain, without finding any visceral pathology and without relief until his back was treated; also a woman who had had three operations with the same result.

If the pathological process is higher up, the pain may simulate gall-bladder disease and quite frequently x-ray plates of negative kidneys have shown me arthritic changes as the cause of the pain.

The diagnosis frequently must be made by exclusion in the cases of abdominal pain. However, by ruling out organic disease of gall bladder, stomach, bowel, kidney, etc., by physical examination, laboratory and x-ray findings, the diagnosis must be made of radiculitis, when the positive findings in the affected regions are areas of hyperesthesia or hypesthesia, with limitation of movement, or painful motion with or without x-ray evidence of hypertrophic arthritis.

Treatment.—The treatment is not medical or surgical, but is mechanical or physiotherapeutic; *i. e.*, applications of heat in one form or another, stretchings of neck or back, massage and manipulations with some sort of immobilization, either adhesive strap-pings, or better a brace or cast. Extreme cases will require manipulation under anesthesia and a cast.

These are some of the cases that obtain relief at the hands of the osteopaths and chiropractors. The



medical profession should recognize these conditions early and institute proper treatment, and thereby keep their patient's confidence and loyalty.



JOHN HOMER WOOLSEY, M. D. (University of California Medical School, San Francisco).—Doctor Gunther has called our attention to a very definite entity that, because of its simulation of symptoms and signs of possible chronic or subacute intra-abdominal lesions, should be eliminated before proceeding with any treatment of the latter. For example, today a patient consulted me in regard to a right inguinal pain for which a hernioplasty was unnecessarily performed in October, 1927, and the cause of this pain I find due to a fractured lumbar vertebra and an associated osteoarthritis.

In the recognition of this condition, the patient's clinical history is of first import and is usually as Doctor Gunther has stated: Aching pain, distributed according to the nerve roots involved, aggravated by motion of the spine or by long duration of one position as walking, lifting, sneezing, coughing, rising from sitting, sitting down, getting out of bed, turning in bed, sitting in one position, riding over a rough road, etc., and relieved by rest, as by a hard bed, a corset, strapping, heat, light massage, etc.

Physical examination is second in value and reveals such data as sensitive areas over the corresponding irritated nerve distribution, painful points over the nerve roots, and lack of mobility of the spine.

A negative history and negative physical findings of simulating lesions should, I believe, be obtained before coming to a definite diagnosis of radiculitis.

Therefore, the lessons from this paper are that radiculitis is a definite clinical entity, and that in the diagnosis there is the need of a good clinical history and a complete and thorough physical examination.



DOCTOR GUNTHER (Closing).—The wide scope and possible application of the radicular syndrome of spinal osteoarthritis is indicated by the discussions which have been participated in by an internist, a neurologist, an orthopedist, and an abdominal surgeon.

In this study I have been primarily interested in the sensory alterations to light touch as demonstrated with the cotton-tuft, and have not adequately employed certain other tests in the sensory examination, particularly the one mentioned by Doctor Churchill. This test falls into the group of cutaneous pinching tests described in considerable detail by Doctor Carnett,<sup>12</sup> a surgeon associated with the graduate school of the University of Pennsylvania.

Since the sensory examination as I have conducted it, proved to be a laborious and time-consuming procedure, it would be valuable to have a test more suitable for routine clinical work. The test described by Doctor Churchill can certainly be quickly applied and if positive, enables a rapid differentiation between skin hyperalgesia and intra-abdominal pathology associated with peritoneal irritation. I plan to use this test as a check on other forms of the sensory examination.

The mechanical strain factors brought out by Doctor Markel run quite parallel to the regional incidence in this analysis. One cannot ignore the mechanical factors in the maintenance of symptoms, inasmuch as immobilization by mechanical means at the present affords the greatest symptomatic relief. Doctor Markel's reference to the osteopathic and chiropractic practitioner is timely. On the medical service of the University Hospital, we often meet this condition. I have been impressed by the number of patients with the radicular syndrome who have visited cultists after having been to a regular practitioner.

I wish to express my sincere appreciation of the discussions and suggestions made by Doctors Churchill, Lennon, Markel and Woolsey.

## TREATMENT OF NEUROSYPHILIS BY MALARIA—FOURTH ANNUAL REPORT\*

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Rochester, Minnesota

DISCUSSION by Frederick Proescher, M. D., Agnew;  
N. N. Epstein, M. D., San Francisco; H. P. Jacobson, M. D.,  
Los Angeles.

THIS is the fourth annual report of the status of the one hundred patients suffering from neurosyphilis who were treated with malaria in the Mayo Clinic between May, 1924 and January, 1926. Two hundred and forty-one other patients have been treated with malaria during the last two years, but the results of their treatment will not be included in this report. The importance of long periods of observation following treatment with malaria was emphasized by Wagner von Jauregg in his first communication. It is my purpose to continue the observation of this original group of one hundred patients as long as possible.

### TABETIC GROUP

The tabulation represents a yearly summary of results in the group of fifty-seven patients having general paralysis who were treated with malaria. The degree of remission in this group has been estimated on the economic status of the patient, and on his ability to maintain his former occupation or to regain his place in life as a wage-earner, if necessary, by undertaking more menial work than formerly. The changes in the objective manifestations of the disease were not considered in this appraisal.

It is difficult to interpret the results of treatment with malaria in a statistical summary. The statement that a certain percentage of the patients are now in remission may be sometimes misleading because many of these patients still show objective evidence of general paralysis. When the patient is examined for the first time by a physician who had not seen him previous to the malaria course, the inference would be that little good had been accomplished. On the other hand, the members of the family and the physician in charge have observed changes in personality before and after the treatment. For example, it is not unusual to see a stimulated, egotistic and overconfident parietic patient with a sense of well-being gradually change following a course of treatment with malaria to a retiring quiet person who lacks self-confidence and hesitates to make decisions without seeking his wife's judgment. Also the extremely nervous type of person, with the so-called nervous-breakdown syndrome, who is afraid of the future and has made suicidal threats, goes through a series of changes in personality which include the agitated, stimulated phase before settling down to the phase of complete remission. Combinations of the various phases are to be noted, and I believe it is essential not to make

\* From the Section on Dermatology and Syphilology, The Mayo Clinic, Rochester, Minnesota.

\* Read before the Dermatology and Syphilology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



deductions as to the outcome of the treatment until at least a full year has elapsed.

Certain patients, more than half of those not in remission, are materially benefited by the malaria course. The troublesome parietic patient who is constantly causing embarrassment to his family by his threatening manner, or the one who wanders away and is unable to find his way home may become docile and sullen, and henceforth lead a vegetative existence. On the other hand, I have also observed patients in whom remission developed rapidly following the treatment and who died shortly afterward in a parietic convulsion while apparently in complete remission.

#### ESTIMATION OF VALUE OF MALARIA THERAPY

In estimating the possible value of malaria therapy for a patient with general paralysis the following facts are to be considered: (1) the amount of good to be accomplished is inversely in proportion to the amount of degeneration, both physical and mental; (2) the possibility of relapse should be borne in mind constantly; (3) almost half the patients treated by this method will be able to resume some gainful occupation; (4) the procedure has definitely decreased the death rate among patients having general paralysis; and (5) the death rate from inoculation of *Plasmodium vivax* approximates 5 per cent. These points having been considered, I believe it essential to stress the fact that the ideal time to use the malaria treatment is when only slight evidence has been shown of clinical and serologic improvement following the routine antisyphilitic measures, and not to wait until the objective signs of general paralysis are obvious.

In my early experience with this method of treatment the serologic changes in the blood and spinal fluid were not considered significant in the interpretation of the results. However, continued observation has shown that reversal to normal of blood and spinal fluid has paralleled the clinical results in most cases, but such improvement has appeared two or three years after the subjective improvement was noted.

Three years after the completion of the malaria course nineteen of the twenty-three patients who showed definite clinical improvement also showed complete reversal of the blood and spinal fluid to normal in all factors. It would seem that the serologic changes which appear several years following the course are more significant than those noted shortly after the course. In several cases in this series there has been decided and rapid reversal of the spinal fluid to normal several months after the malaria course, but the patients eventually remained incompetent or died unexpectedly from parietic convulsions. I do not believe that interpretation of the rapid reversals of the spinal fluid to normal as of prognostic significance is justified. Neither are such changes an indication in regard to further treatment any more than the reversal to negative of the Wassermann test on the blood permits an estimate of cure in latent syphilis. The economic status of the patient remains the outstanding factor in estimating the

degree of improvement and the repeated examinations of the blood and spinal fluid serve only as encouraging factors of the result of treatment with malaria. From clinical observation it would seem that the serologic changes which follow several years after the clinical improvement are the result rather than the cause of this improvement.

#### NONPARETIC GROUP

The remaining forty-three cases presented the nonparetic type of neurosyphilis. Thirteen of these were in the group of asymptomatic paresis or paresis sine paresi. There were six cases of taboparalysis, and six of asymptomatic neurosyphilis, that is, persistent positive reactions of the spinal fluid without objective signs of involvement of the nervous system. The remaining eighteen cases presented varieties of tabes dorsalis such as gastric crisis, optic atrophy, and persistent leg pains which had failed to respond to intensive routine antisyphilitic medication.

In the paresis sine paresi group are included the cases in which the condition of the spinal fluid suggests the eventual development of general paralysis, but in which clinical signs have not as yet developed. The appraisal of the value of treatment with malaria in this group has been based on the general tonic improvement and the serologic changes, and it shows that in eight of the thirteen cases the patients have been markedly benefited in both respects. It is in such cases that the early use of treatment with malaria will probably prevent or greatly decrease the incidence of general paralysis.

The six patients suffering from taboparalysis did not, as a group, do so well. Two died, the disease progressed in two others and clinical signs of paralysis developed, while the condition of the remaining two has not changed. This is in accord with my experience in cases of frank tabes dorsalis, in that the results are not so favorable as in cases of general paralysis.

The asymptomatic neurosyphilitic cases are those in which the spinal fluid examinations remain persistently positive but do not show the suggestive serologic signs of general paralysis and do not respond to the intensive use of arsphenamin, mercury or bismuth, or any of the modifications. The estimation of the results of treatment in this group are based on the serologic changes only. In five of these six cases there was complete reversal of the blood and spinal fluid to normal, while in the sixth case the Wassermann test on the spinal fluid was weakly positive, there were two cells, and the benzoin curve was negative. The use of arsphenamin and mercury after the malaria course in this group has been unsystematic and so slight in comparison with the intensive treatment given before the malaria course that it is practically of no significance.

My experience with treatment by malaria in uncomplicated forms of tabes dorsalis has been unsatisfactory. Many of these cases are self-limited and spontaneously arrested; in some, however, persistent symptoms continue although there are no serologic changes and no appreciable ad-



vance in the neurologic signs of the disease. Outstanding in this group of cases are two types: the so-called burnt-out or arrested tabes with persistent lightning pains and those of gastric crisis. It has been my experience that the routine use of antisyphilitic treatment has been of slight value in these cases.

In the group of gastric crises the original three patients treated with malaria relapsed. However, during the last four years there have been twenty-five cases of gastric crises complicating arrested or burnt-out tabes dorsalis. Fourteen patients in this group have been materially benefited by the treatment. Similar results have not been noted in the cases of optic atrophy. One of the seven patients treated four years ago had not experienced progressive loss of vision, while in the remaining six there has been a steady loss of vision. In my early experience with treatment by malaria I had hoped that a higher percentage of patients with optic atrophy might be benefited. The conditions in the two patients with persistent neuritic pains of tabes dorsalis remain the same; one has been almost completely relieved, and the other has not improved.

In the report made at the end of the third year it was noted that nine of the original one hundred patients treated were dead. During the last year two other patients have died, one with general paralysis who had not been benefited by the treatment with malaria and died in a convulsion; the other was killed accidentally. Eight of the patients who died had general paralysis, two had taboparalysis, and one paresis sine paresi or asymptomatic paralysis. The death rate as influenced directly or indirectly by the malaria course remains 5 per cent, the other deaths having been incidental and not influenced by malaria.

#### COMMENT

My experience with treatment by malaria during the last four years has convinced me that it is the outstanding method of treating parenchymatous neurosyphilis. The results from the treatment are dependent on the amount and site of the destruction in the brain and spinal cord. It is unfortunate that an appraisal of the objective signs of general paralysis does not always warrant deduction as to the degree of injury the nervous system has already sustained. The same may be said of the duration of the mental symptoms; I have noted some striking results following treatment with malaria of patients who have had symptoms of general paralysis for four years; on the other hand, therapeutic failures have been observed in patients whose mental disease had been recognized only three or four months before the treatment was instituted. These factors render a prognostic opinion difficult. The patient who shows definite clinical evidence of mental degeneration may manifest partial remission following treatment with malaria. He is easily managed and is amenable to suggestions, but has no insight or ambition or ability to take responsibility. The changed personality is obvious. The results in the

groups of general paralysis, paresis sine paresi, and asymptomatic neurosyphilis conclusively show that the earlier in the course of neurosyphilis the treatment with malaria is given the better the results. It is my practice now to give the neurosyphilitic patient one or two intensive courses of arsphenamin, mercury and iodids, or some of the modifications, following which, if there is no clinical or serologic improvement, the malaria course is recommended.

The scientific basis for the use of malaria or other fever-producing agents in the treatment of neurosyphilis has not been established. The method is still used empirically. *Plasmodium vivax* probably does not, in itself, play a specific part in producing the results, and the mechanism involved in stimulating the factors of resistance is not known. The reversal of the blood and spinal fluid to normal, as occurs in most cases in which there is improvement during the second and third year after the malaria course irrespective of the amount of subsequent antisyphilitic treatment, indicates that a factor of resistance is involved. Wagner von Jauregg called attention to the delayed serologic results in his early reports and emphasized that they were not paralleled by the clinical improvement until several years later.

In my experience the value of this form of treatment has been proved not only in neurosyphilis but in various other resistant complications of the disease, such as interstitial keratitis and osseous involvement in congenital syphilis.

The Mayo Clinic.

#### DISCUSSION

FREDERICK PROESCHER, M. D. (Agnew State Hospital, Agnew).—My experience with the treatment of paresis by malaria is a brief one. This treatment I started at Agnew State Hospital in May, 1927, and have applied it to forty-one cases to date. Thirty-one of these will be considered in the discussion, the remaining cases not having been observed long enough to justify a definite statement of results. Of these thirty-one, five are in remission, eleven are improved, eleven unchanged, and four are dead. Only one case came to autopsy. The microscopic examination of the brain showed a complete disappearance of the perivascular infiltration. The iron reaction was slightly positive.

The five cases in remission returned to their former occupations. I agree with Doctor O'Leary that the degree of remission should be judged by the social status of the patient.

There can be no doubt that the malaria treatment of parenchymatous syphilis is the most effective so far developed. The procedure is relatively simple and can be easily carried out in a state institution. On the other hand it cannot be denied that this form of therapy is attended with definite risk to the patient, but with a better knowledge of the complications arising during the treatment, deaths due to therapeutic malaria will be reduced.

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N. N. EPSTEIN, M. D. (384 Post Street, San Francisco).—The entire armamentarium of antisyphilitic drugs frequently fails to check the progress of a syphilitic infection of the central nervous system. Often we are at a loss as to what to do for a patient who continues to go downhill rapidly in spite of intensive therapy with the arsphenamins, mercurials, bismuth preparations, and the iodids. The malaria therapy offers a new mode of attack upon this problem, and its value has been proved conclusively. There is no



doubt but that this treatment has prolonged and made more useful the life of many of these patients.

Our experience at the University of California has not been great, but the results in some cases have been very gratifying. It was found most difficult to keep an active strain of malaria over a long period of time. On several occasions the strain was lost either by its dying out spontaneously or by having to stop it because of a critical condition arising in the patient. At present we have kept an active strain of malaria for several months through the cooperation of a number of hospitals.

The best results were obtained in the paretic group. Three patients who were completely incapacitated previous to the malaria therapy have returned to work and have filled their positions satisfactorily for two years. Others have not been followed long enough to see how much improvement will be obtained.

Doctor O'Leary has emphasized that malaria therapy should be used on all types of syphilis of the central nervous system which fail to react favorably to antisyphilitic drugs. We have used the treatment on several cases of tabes dorsalis who did not obtain relief from their pains and crises by drug therapy. It was noted that the lightning pains became very much accentuated at or shortly after the time that the patient had his malarial chill. Several of these patients have benefited very definitely from the treatment.

We feel very much as Doctor O'Leary, that the malaria therapy is very valuable and its use should be extended to other types of resistant syphilis.

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H. P. JACOBSON, M. D. (1016 South Alvarado Street, Los Angeles).—Doctor O'Leary has done us a great service by directing our attention to a method of treatment of certain types of syphilis which has to date received altogether too scant attention in this country. After all is said and done, the handling of latent and active late syphilis must resolve itself into an attempt to dislodge the *Spirochaetae pallidae* from their moorings and, if possible, cause the destruction of as many of their colonies as the particular occasion will permit.

While in the early stages of the disease, when the spirochetes are loosely attached to the tissues and not completely at home, so to speak, our specific chemotherapeutic agents—the arsenicals and bismuth compounds—are fairly able to take care of the situation by their destructive action upon the organisms (in the latent and late stages of the disease this is very often not the case) because the *Spirochaetae pallidae* have in a great percentage of cases become a biochemical part of the tissue in which they reside and therefore not available to the lethal action of our specific chemicals.

In view of that fact it is quite obvious that any method of treatment which promises the successful detachment of the organisms from their "hiding places" and at the same time is able to hinder their further existence should command our serious attention.

Theoretically, malarial inoculation offers these therapeutic possibilities. It is likely that the severe chills caused by the *Plasmodium vivax* result in a "revolution" in the infected tissues and a consequent detachment of the *Spirochaetae pallidae* from their "hiding places." The marked and sustained pyrexia, on the other hand, may exert a direct destructive effect upon the spirochetes, as it is known that these organisms do not withstand a high degree of temperature very well. In addition there is a possibility of some sort of relationship between the malarial and syphilitic organisms as well as a nonspecific protein stimulation of the immunity mechanism of the sufferer by way of the reticulo-endothelial system.

These theoretical considerations, coupled with my limited experience with this form of treatment plus the favorable results obtained by such competent investigators as the essayist, lead me to believe that malaria inoculation should constitute the treatment of choice in cerebrospinal and other types of syphilis which do not respond to our specific chemotherapeutic agents.

## UROLOGY—A REVIEW OF RECENT ADVANCES\*

By E. SPENCE DE PUY, M. D.

Oakland

THE fortunate province of a chairman is to call the attention of his section to whatever new developments seem to him worthy of consideration. In the past year there has been nothing startling in the field of urology. There has of course been much new work done, some of it perhaps of that foundational character which will at a later date prove the basis for greater developments than are at the moment discernible.

When we have accomplished a certain something that appears to have added to the sum total of our knowledge or achievement, we find it necessary to pause awhile and orient ourselves from the new height to which we have laboriously made our way.

At the moment, urology is on one of its high plateaus. Our specialty in medicine has accomplished so much in the way of refinement of diagnostic procedure, has consolidated its discoveries to so remarkable a degree that for at least a little while it seems somewhat difficult to attain to higher levels. It is at times like this when, pointing with pride to the readiness with which we lay bare the secret diseases of the urinary tract, we are in danger of becoming to some degree complacent.

If for a moment we do not press forward resistlessly, the resting space is probably a little in the way of reward for having made the upward struggle. For the real urologist, the wholly scientific man, ablaze with the zeal for conquest of usable life-promoting knowledge, the hesitation will be but momentary, hardly more than breath taking; it will be only the smaller mind that will linger in rapt contemplation of his admirable acts; and he, by the very laws of nature, will be quickly left behind while others, struggling on towards further heights will soon look back upon the past and consider it a commonplace lower level.

In the advance from our present station to a distant pinnacle now raising its head in the clouds beyond our vision, and which it will require a strain to reach, it will hearten us for the fresh Alpine dash, if in quick review, we appraise the distance from whence we have made our way.

Urology, now recognized as a distinct specialized branch of medicine, has not always enjoyed this honor. In urology's early days, some few men of unusual ability, and a special liking or aptitude for mastery of urological diseases, distinguished themselves by conspicuous success in the management of the afflictions peculiar to the urinary tract, but, zealous as they were, they could not, mainly because of mechanical handicaps, do more than make urology a type of work to which they directed specialized attention.

### IMPORTANCE OF MODERN-DAY INSTRUMENTS

How large a part mechanics has played in the development of our specialty, we all appreciate,

\* Chairman's Address, Urology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30-May 3, 1928.



yet it seems not inappropriate to mention them here. The idea of looking into that hollow viscus, the bladder, as conceived by Nitze, was hardly more than a hope, a dream, until a wizard presented us with a cold miniature lamp for safe illumination, and this was the first great step. The next tremendous stride was the ureteral catheter. And what cunning and skill it required to devise a hollow tube of sufficiently narrow diameter and yet of great enough lumen to collect urine from the kidneys. Commonplace, these things today, yet there are men in our section who do not even recall the time when these conveniences did not exist, and who know nothing of those men to whom the catheterization of only one of the ureters was an accomplishment of the first magnitude. What is with us an everyday routine procedure would be impossible without the cystoscope and ureteral catheters and our specialty could be nothing but the guess it used to be.

Bransford Lewis, in 1907, tracing the growth of urology and citing the important contributions and naming the outstanding personages through whose labors we have come even so far as we have, traced urology from its earliest feeble efforts to overcome the difficulties which our modern equipment has made it so easy to handle.

Caulk, in a recent address, points out that man's first surgery was directed toward the urinary organs. Some thousand years B. C., the catheter, such as it was, was used to relieve retention of urine, and sounds were used to dilate strictures, so it must have been that even in those early days the moral problem and the consequences resulting from promiscuity gave as much concern as it does today. In those early pre-Christian days, they also had to their credit the widely practiced art of cutting for stone, or perineal lithotomy.

Upon the foundation of Nitze's cystoscope has been built modern urology, a specialty which has grown to such extent that today we have independent urological hospitals, and almost all general hospitals have their urological departments. This splendid achievement has only been made possible through the untiring efforts of those who blazed the way and who at the time were hardly thought of as pioneers. Not so long a distance in the future, however, another generation, looking back upon our present day work, may speak of our accomplishments as of pioneer type also. As we see them now in retrospect, we can appreciate the fact that really notable foundational work was done by a few outstanding men whose names come to us automatically as the great men of their time—Guiteras, Lewis, Young, Cabot, Caulk and Schmidt, for example, even though one does not endeavor to call a complete roll. And, in our own West, we can be proud of the contributions to our branch of medicine of such men as Chismore, MacGowan, Krotoszyner and Rigdon, to say nothing of the younger men who have taken up the work and carried it forward; and we are glad to know that many of them are of our present assemblage.

It is safe to say that we cannot rest upon what we have done, nor upon what we are doing now.

Growth is under the compulsion of continuance. We have two great obligations. To continue the quest of knowledge, both abstract and concrete, and to apply that knowledge to the development of technique. Along with this, we have ever and always the practical necessity for disseminating that knowledge. This is not to teach the general practitioner, either medical or surgical man, how to perform urological procedures, but to make him fully cognizant of what are the danger signals in order that he may seek competent help.

#### RELATION OF GENERAL PRACTITIONER AND UROLOGIST

Always we must carry on an educational campaign. That is as much a part of our work as any of the tasks we undertake. Some things are best left to the specialist. The urologist cannot treat glaucoma, nor operate upon the ossicles of the ear; the law gives him the right but he has no business to exercise that legal privilege; no more can the case of hematuria, either gross or microscopic, be searched out and adequately dealt with by the general man. He has the legal right, but has he the moral right? Has he the specialized knowledge that makes such undertakings hard even for the man who devotes his whole time to the study of urological diseases? He himself knows that he has not, and when he attempts it, it is frequently against his better judgment.

We must be hampered by no false conception of the general man's attitude toward our preaching. He is not antagonistic to it, he welcomes it. The general man, either medical or surgical, is often too busy. Frequent contact with conditions which nature herself heals under favorable conditions sometimes engenders undue and unjustified optimism. When calamities result from neglect, no one is more shocked than the man who has overlooked the danger signal. We have all had medical friends who have admitted in private that they did not realize that tuberculosis and hypertrophied prostate, with renal back pressure, were creating an intolerable condition. We have all seen large residual urines inexcusably catheterized once or twice a week. The general surgeon, even today, has not been made to realize the enormity of the offense in taking a prostatic from home to hospital and operating the next day. If such practice is common, the fault is ours. If a nephrectomy is done without knowledge of what the other kidney is worth, or even whether there is another kidney, again the fault is ours because we have not yet sufficiently made clear the necessity for urological investigation. Let us keep on preaching.

Is the general surgeon to be his own urologist? As a general thing this feat cannot be done and this is a fact that might as well be realized. The bigger the surgeon, the oftener he asks for help. No man can be an "all-round specialist." There are certain refinements of technique that no one need be ashamed to admit he has not mastered; highly specialized instruments require special skill, and the ability to determine the value of diag-



nostic evidence can only be acquired by time and experience.

Why exploratory operations for many kidney diseases must be done, is difficult to understand, as in most instances all desired information may be obtained by other means. We frequently hear it said that anyone can take out a prostate. Perhaps almost any surgeon can drag the prostate from its bed, after a fashion, but with what results?

If we desire to do the things that properly fall within our specialty, we must do them better than others can do them. We must do them sufficiently better than others so that when the hospital staff has its regular meeting for analysis of mortality statistics, our mortality and our end-results will stand out as conspicuously better than the results of the general man. Let us therefore continue to keep our standards high; to be continuously self-critical and determined with each succeeding year to do a little better work than we have in the year we have left behind.

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## A NEW EMPHASIS IN MEDICINE\*

By LOVELL LANGSTROTH, M. D.  
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DISCUSSION by James L. Whitney, M. D., San Francisco;  
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THERE are many discordant notes in the attunement of medicine to the pitch of America's life. Much of the research in physical education, mental hygiene and nutrition has originated from medical sources while the propaganda for its application has been left to other groups. The great body of practitioners thus rarely assumes leadership in matters concerning conservation of health though established in a confidential relationship with those most in need of it. This indifference has resulted not only in doubt but in actual loss of faith in medical orthodoxy. It finds its answering expression in appeal to a philosophy which denies the reality of suffering, in recourse to the manipulations of various adjusters or in frank discouragement and pessimism. The seeds planted by research in the new fields of health must be tenderly nurtured by medicine if their fruits are to nourish progress.

### MEDICAL FIELDS STILL OPEN TO INVESTIGATION

Fourteen years of practice and close association with medical education have perhaps earned me the privilege of kindly criticism of both. They have been years of continuous attention to a great deal of medical literature, of interest in psychology, philosophy and education in their application to the problems of living. They have given me an increased interest in the problem of personal health and a better equipment with which to advise people how to acquire it. But they have been years of growth on a different plane from that of the standardized ideas of medical practice and education—a plane from

which it is possible to see in deeper perspective and so beyond the immediate horizon. Things which formerly loomed large are now dwarfed by potentialities of this wider vision. Earlier objectives and methods now fail to interest or stimulate so fully, because when applied to the problem of personal health they seem inadequate. A broader conception of the function of the physician is envisaged.

### WHERE MEDICAL PRACTICE GETS PROMPT RESULTS

I should first make it clear that there is a broad field of illness where medical response is prompt and generally adequate. This includes the injuries resulting from accidents, the acute illness resulting from infection and in general all disease where therapy is clear and positive. There is rarely any doubt of the practitioner who spends his energies reducing fractures, operating on acute infections of the abdomen or helping womankind through the difficulties of childbirth. His technique in these procedures is usually sure and adequate and earns him the respect and affection of the community. When disease is frank and outspoken and particularly where it affects structure, the profession functions up to the limit of what we can reasonably expect of human beings.

### OBSCURE DISEASES NOT YET ADEQUATELY TREATED

But what of the disease that has not reached the structural stage? A great proportion of human beings spend the latter half of life complaining of unrelieved fatigue, or headache, or backache, or indigestion, or nervousness for which a cause is rarely found. The attitude of medicine toward these sufferers is often characterized by the complaint of a splendid young medical consultant that so few of his patients had anything the matter with them. There is a general helplessness, almost a resentment in the face of disease which does not visibly affect structure.

What are the standards by which these men judge health? Is there no difference between these chronic complainers who have nothing the matter with them and those persons who never complain—no difference except that of an irritable nervous system which we resent and dismiss? Are there no health criteria besides blood pressure and heart sounds and urine examinations? In this connection there comes to mind an acquaintance encountered by chance during a summer vacation in the mountains. Alarmed by the sudden unexpected death the previous winter of several of his contemporaries he had visited a physician and come away completely reassured and fortified in his manner of living by the fact that his blood pressure and heart sounds and urine were normal. Now this gentleman's excesses at the table and bottle were not only commonly known, they were painted in colors no discerning eye could miss, in his lumbering gait, his protruding paunch, his beefy face and his general sodden appearance. It was entirely a question of chance how long the accident of a superb inheritance of

\* Read before the San Francisco County Medical Society, February 14, 1928.



vitality would allow him to escape the consequences of such living. And what is to be said of the criteria by which a middle-aged woman who had a series of "heavy colds" every winter was declared to be "all right"? Stressed by a problem of adjustment, hurt by life, driven into a frenzy of club activities as an outlet, this tired, pallid woman with bluish circles under her eyes continued her method of living because there were no signs of tuberculosis in her lungs. Such mechanistic inelastic health criteria are no measure of a person's ability to function up to fullest capacity.

#### POSITIVE HEALTH AND ITS SIGNIFICANCE

We must have new standards for comparison in matters of health. I have pointed out that the present practice is to mark the beginning of disease by structural change, to assume that its absence means health. But there is a long downhill road before this point is reached. At its beginning is the condition of positive health. There is never any question about this rare quality. Persons possessing it stand out by themselves from the host of dull-eyed, sallow, tired, complaining humans who pass as well. Clear and shining of eye, warm and glowing of skin, erect and at ease, these rare beings are alert and mindful of their changing environment and adapt themselves rapidly to it. But positive health means more to me than adequate adaptation to the environment. It means also a rounded development—the maintenance of a proper balance among all our capacities. The moment of its decline should mark the beginning of disease.

This definition of positive health has a significance both physical and mental, if for a moment I may use terms which imply the division of man into two parts. It is a fact that he frequently becomes predominantly physical or mental according to the accidents of inheritance, inherent capacity, or early environment, but I deny the necessity for this. Energy or impulse seeks its outlet along the path of least resistance. In those of robust structure it overcomes the difficulties of the environment by physical means, in those less fortunate it reaches the end in view by mental processes. But who will say that wise direction may not take the matter out of the hands of chance and force impulse to find more outlet, on the one hand, in mental, on the other, in physical activity. After all the only fundamental difference between these two lies in the nature of the obstacle to be overcome.

#### THE ELEMENTS WHICH MAKE UP POSITIVE HEALTH

If positive health is to be the norm from which all deviation begins we must understand all the elements that contribute to it. Inheritance comes first, and probably foremost among these, not the inheritance of structure but the inheritance of tissue qualities giving resistance to fatigue and infection. This is an endowment almost entirely dependent on the lives of the progenitors with respect to nutrition, sunlight, exercise, and freedom from excessive strain. It may so fortify its

possessor that he easily survives for a long period the adverse circumstances of poor nutrition or accidental infection.

Nutrition follows next in order of importance among the elements that contribute to positive health. The average American eats much more than he needs. The digestion, absorption, combustion and elimination of this excess as heat and waste entail a very considerable burden on his metabolic processes and particularly on his circulation, a burden which after middle life becomes proportionately greater. And the average American selects foods of poor quality. It is particularly rich in degerminated cereals and sugar and dangerously poor in mineral elements, residue and vitamins. In fact his diet in respect of quality is constantly suboptimal. This probably contributes to much of his degenerative disease and certainly makes his children constitutionally inferior.

Sun exposure ranks with inheritance and nutrition among the elements that contribute to positive health. We know definitely that it activates certain chemical compounds in the body so as to give protection against rickets but we are equally sure empirically that it raises the body resistance to fatigue and infection and that it stimulates structural growth. Properly used it may help to overcome both poor inheritance and poor nutrition.

Good body posture and symmetrical muscular development are important elements in positive health that depend largely on preceding inheritance and nutrition. They come naturally through play and competitive games to a rested, properly fed child, whereas fatigue and the drooping attitudes of bad posture come naturally to a tired, badly fed child. Training may gradually restore them but only after rest, proper food and sunshine having first brought the individual to the point where exercise no longer produces undue fatigue.

These five elements of positive health—inheritance, nutrition, sun exposure, body posture and symmetrical muscular power all contribute to the development of a sixth, personality. But this final element, if it is to adapt the individual for the friendly competition of our social system requires on its side certain suitable conditions for growth. The first of these conditions is a mind of at least average ability—a mind sufficiently interested in its environment to find means for releasing the vital energy of the individual with satisfaction to him. If this means can be useful or give happiness to others he lives in harmony, if it disturbs the happiness of others he lives in conflict. The second of these conditions is opportunity of early association with mixed groups of persons so that natural inherent individualism may learn the give and take of community living.

The first of these six elements, inheritance, is in control at the moment of birth but nutrition, sun exposure and the environment formed by the immediate, surrounding group almost immediately assume equal importance. If these are favorable, good posture and muscular power develop with the beginning of physical activity. Youth is thus



the period of integration of these elements into an individual. His health depends on the balance between them. When all have been present to a reasonable degree or when the deficiency of one has been overbalanced by combinations of the others he is in positive health. When many have been absent and especially when the inheritance has been poor he may never achieve positive health and is almost sure to break under the strain of competition.

#### HOW POSITIVE HEALTH CRITERIA ARE APPLIED

The adoption of this new standard of health will open up an entirely new field for medical practice. The tired, irritable, complaining patients who for so long have had nothing the matter with them will fall naturally into some category between the stage of positive health and that of structural disease. They will be interesting problems for analysis and constructive therapy. Inherited qualities and capacities, early nutrition, environment and training, physical and intellectual equipment, personality characteristics, adjustment to and interest in the environment, habits of eating, sleeping and exercising, will all come up for review. The thing or combination of things that has brought the individual to the point of complaining of his health will be determined. Therapy will be ameliorative or completely corrective depending on the degree to which the various factors are susceptible of modification. And the pallid-faced club woman will be taught to live without a succession of colds, for proper analysis will reveal the various points of strain under which she was breaking. The emphasis in medical practice will be placed on those patients for whom it is still possible to get results and not on the intricacies of structural disease.

#### POSITIVE HEALTH AND PREVENTIVE MEDICINE

Such criteria for health will also further the development of preventive medicine. Many who consider themselves well will be found lacking when judged by the standards of positive health. With a knowledge of their shortcomings and capacities they will have the opportunity of gradually developing an intelligent choice in the selection of food, the habits of exercise, the development of interests and the selection of environment. The gentleman with the lumbering gait and the sodden appearance will at least be made to understand that degenerative disease, lowered resistance to infection, shortened life span and a gradually diminishing sense of well-being always follow the excesses in which he indulges. He will be told that such living habits will transmit to his children an inheritance in tissue quality which makes them more susceptible to structural disease. An understanding of the personal responsibility of the individual to his body and to his descendants will replace the present querulous attitude of resentment that medicine is unable to cure disease.

#### NEW HEALTH STANDARDS NOT RAPIDLY ACCEPTED

The change in point of view implied in acceptance of new standards for health will be passively resisted. Medicine emerged through the smoke of

mystery from an age in the dim past when both physician and patient believed in the potency of charms and amulets. And even now the atmosphere is not quite clear. The light of our newer nutrition and our newer psychology has scarcely penetrated the clouds of misinformation and superstition in the air. So much of the murky dimness of our past hangs about us that we still have faith in the magic of prescribing and taking a bottle of colored liquid. Out of this same dim past reaches the arm of tradition. The human mind clings to it for support, resisting change from the security of a scheme which works fairly well. Medicine must learn to walk without leaning too heavily on the past if it is to lead in breaking down resistance to these new standards for health.

#### APPLICATION TO SELF AND TO THE MEDICAL CURRICULUM

If we are to take our proper place among the leaders of the movement toward positive health we must first apply the new standards to ourselves. Paradoxically enough we devote our lives to telling people how to get well and are often sick ourselves with preventable disease by early middle life, sacrificing health, happiness and even life itself to an ideal of service. This sacrifice is of far less value than the example of fine right living we might set to the world.

To insure the development of this leadership we must have a proper personnel and a new emphasis in the medical schools. Modern education upholds that the teacher must have grace and strength of personality, that he must establish a comradeship with the younger individualities about him—a comradeship founded on mutual respect, on mutual recognition of open-mindedness and of capacity for growth. Modern philosophy maintains that he must inspire not only respect for attainment in some specialized field, but interest in the welfare of humanity and constructive imagination in the application of knowledge to the problems of living. Modern psychology asserts that he must endeavor to develop in his students along with their acquisition of knowledge, a breadth of culture, a freedom of personality and of outlook, a quality of freshness, of vitality, of courage, a capacity to take on the difficulties of life with a sense of advancing toward a glorious adventure. Indeed the possession of these personality characteristics and of these teaching objectives would seem as necessary in modern medical education as distinction in the special field of research. The older method of stamping the ancient pattern of conformity on fresh sensitive material has gone by the board. Rather is there a determination to offer the young the fullest opportunities for the acquisition of experience and for development to fullest capacity. And these modern teachers must interest the student in higher standards of health, in smaller variations from normal, in constructive medicine and



preservation of individual health as well as in diagnosis and pathology. They must discuss the complaining patient who "has nothing the matter with him" as well as the patient with structural disease. They must make ward rounds an opportunity for fuller participation in life as well as a prelude to the operating room. It may be objected that the various courses of the best medical curricula already cover the ground outlined in these suggestions. This is largely true. The answer lies in the demand for a new emphasis in the medical school.

490 Post Street.

#### DISCUSSION

JAMES L. WHITNEY, M. D. (490 Post Street, San Francisco).—This paper is aimed to correct some of the most serious deficiencies in present medical practice. Nowhere is propaganda more needed—among the laity to bring them to demand and to utilize certain types of medical service, among the profession to induce them to furnish such service. The opposition is human laziness. The average patient wants simple directions, a pill to take, or to have something cut out—to be cured by somebody else, in fact. He resents having the problem passed back to him by being asked to be responsible for good habits of eating, sleep, exercise, work and play. For the doctor too the proposed program would demand that most painful of tasks—really thinking, individualizing his case, treating the whole patient, cutting loose from rules of thumb. It is too easy to prescribe a conventionalized treatment for a concrete and developed disease; too much of a nuisance to find out the functional maladjustments and misuses which have not yet caused tissue change, and to offer each patient an individual program for living. And yet there is a demand for this type of service and there should be a much greater one. The pediatricians are beginning to make a success of it with children. Why should adults not be taught how to get well of "functional" complaints, and so to live that they stay well?

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CHARLES D. LOCKWOOD, M. D. (605 Professional Building, Pasadena).—This vigorous and stimulating paper of Dr. Langstroth's introduces a new note into our medical life. It might be appropriately called a digest of the philosophy of medicine.

Proper emphasis is laid upon the fact that the regular profession has failed to give the benefits of medical knowledge to those suffering from functional diseases and hereditary weaknesses. We are too prone to dismiss such patients with the assurance that there is nothing wrong, and vague instructions as to their manner of life. Many times a sympathetic inquiry into the family history, domestic environment and personal life will open up avenues of helpfulness, that the wise physician can use to the great benefit of the patient. This personal interest and understanding will contribute much to the recovery of patients who have undergone surgical operations and special treatment, as well as those who complain of functional disorders.

Through too great emphasis on specialism, the regular profession has lost contact with the average sick person and in his effort to secure advice at a reasonable price he has turned to the cults. In this way the line of communication between the regular physician and the specialist has been interrupted. We need a class of practitioners to replace the old family physician, who while they recognize the value of specialism, have also the knowledge and confidence necessary to assume the guidance of patients in the ordinary ailments of life.

## SPHENOID PATHOLOGY\*

FROM THE ROENTGENOLOGISTS' STANDPOINT

By D. G. CLARK, M. D.  
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AND

H. J. ULLMANN, M. D.  
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DISCUSSION by John Hunt Shephard, M. D., San Jose; Howard E. Ruggles, M. D., San Francisco; Philip C. Means, M. D., Santa Barbara.

THE nasal sinuses are at present probably under suspicion as foci of infection more than any other part of the body. This may be due to the persistent symptoms in patients who have had all other foci investigated and eliminated. Whatever the reason, any method of demonstrating changes in these structures is heartily welcomed by all internists. Most rhinologists will refuse to treat sinuses which have been diagnosed as pathological by the roentgen ray, unless there are also clinical signs of infection. Because of this a great many of our positively diagnosed sinuses were at first turned away by the rhinologists, until some of the internists insisted that they be treated. Much to their surprise, pus was found, and the symptoms subsided under treatment. Gradually most of the men in our community have become convinced that we have an accurate diagnostic aid and accept our reports.

#### TYPES OF FILMS

In our sinus examinations we take films from three angles: one from Water's position; one from Granger's position; and one lateral. The Granger position is probably the least used, but is, we think, the most important of all. There has been a great deal of controversy as to the reliability of sphenoidal interpretation and of the comparative value of different methods. We shall not go into the comparative merits, as that has been discussed in detail; but in the Granger position we have a very accurate means of demonstrating sphenoidal pathology.

#### THE GRANGER POSITION

Granger has so thoroughly described his technique<sup>1</sup> and the changes demonstrated, that we shall mention only some of the points we have found to be of importance. Granger's reports have included: work on dried skulls,<sup>1,2</sup> rhinological investigation to check his interpretations,<sup>3</sup> and comparative value of the sphenoid technique.<sup>4</sup> The interpretation depends on changes seen in the Granger line, a line formed by the roof of the sphenoids, and the sphenoidal density beneath it. Using Granger's 17-degree angle block and the bakelite mask, there is little chance for wrong

\* Read before the Radiology Section, California Medical Association, at the Fifty-Sixth Annual Session, April 25-28, 1927.



position regardless of the shape of the individual head. The glabella and alveolar process rests on the mask, with the head inclined downward, and the x-ray directed perpendicular to the table, thus doing away with uncertainty regarding the angle at which to tilt the tube for individual heads. By this method no particular skill is required to duplicate films from the standpoint of position. It is quite essential that the head be inclined downward so that if pus is present it will flow toward the roof of the sinus.

The changes found and their significance are as follows:

Empyema—Granger line absent. Density equal or slightly increased (reduced).

Polypoid—Granger line absent. Density increased.

Vacuum—Granger line lessened. Density equal or increased.

Hyperplasia—Granger line lessened and broadened. Density equal or slightly increased.

Osteoplasia—Granger line broadened but not lessened. Density slightly increased.

#### COMMENT

After examining large numbers of films taken by this method our reaction is that a normal sphenoid is a rare condition. Following the patients' histories we are convinced that we were not reporting pathology in patients without infection. In one series of patients, whose symptoms suggested focal infection, all the usual tests were done, including roentgenograms of the sinuses. A large percentage of positive infection was reported, sphenoidal pathology leading with about 90 per cent of the cases. Since few of these patients had evident clinical sinusitis, there was hesitancy in treating them. At first only the empyemas were treated. After getting improvement in this group the rest were treated with gratifying results to the patients. When we say treatment we do not necessarily mean operation, as most of them were being treated conservatively. Although we no longer argue in our community about findings it is not uncommon to have our positively diagnosed patients refused treatment in other cities, the rhinologists telling the patients they have no sinus disease. However, some of these patients have been treated by other men with relief of symptoms. To conclude, in our experience there seem to be a large number of diseased sphenoids which are being overlooked that would be recognized if this roentgen technique were more widely used.

#### SUMMARY

Sinus infection is a frequent source of focal infection in cases of systemic disturbances.

We believe the sphenoidal sinuses are commonly involved with or without changes in the other sinuses, and that by the Granger technique the

sphenoidal changes may be very accurately demonstrated by the roentgen ray.

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#### DISCUSSION

JOHN HUNT SHEPHARD, M.D. (Twohy Building, San Jose)—The locating of foci of infection is one of the most difficult problems in diagnosis. The frequent failure in relieving patients of their symptoms by removal of the tonsils and teeth is justly developing a suspicious public. To advise a patient to undergo a tonsillectomy or have one or more teeth extracted before thoroughly investigating the possibility of all other sources of infection is unjustified, and if we are to retain the confidence of the public we must be more exhaustive in our examinations.

To determine the presence of a chronic infection in the sphenoid and ethmoid sinuses is one of our most difficult problems, and though the x-ray has been employed as an aid in this field for several years, most clinicians feel that it has been of limited value. In 1923 Granger advocated a new roentgenological technique based upon an exhaustive study of dried skulls, the sinuses of which he filled with media of various densities. It has the great advantage of being simple and easily mastered by any technician. Repeated films can be made for comparison at exactly the same angles. The line at which the shadow of the petrous portion of the temporal bone traverses the orbit tells instantly whether or not the film is reliable for study. When the films are interpreted according to Granger's instruction much valuable information is obtained. On various occasions we have requested our consulting rhinologist to thoroughly shrink the nasal mucosa and apply relatively strong suction which has demonstrated sphenoidal or ethmoidal sinus infection where a prior nasal examination had been reported negative. For the past year we have used the Granger technique on all patients presenting the symptoms of "foci of infection," and in a few cases have been rewarded by locating a focus of infection which otherwise would have been missed.

I believe that if every rhinologist would thoroughly familiarize himself with roentgenograms of the sphenoid and ethmoid sinuses made by the Granger technique he would appreciate its value and require that it be routinely used in all doubtful cases.

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HOWARD E. RUGGLES, M.D. (384 Post Street, San Francisco)—There is no doubt that the Granger technique for visualization of the roof of the sphenoid is of great assistance at times. It gives a practically

unobstructed projection of the upper portion of the sinus, the exact amount of clearance depending upon the size and shape of the sinus and the shape of the skull base. It should be one of the routine positions in sinus examinations.

All sinus films must be of the highest technical equality and this is of particular importance in the Granger position. The use of fine focus tubes and accurate fixation of the patient are essential.

The authors have well stressed the importance of adequate x-ray studies in suspected sinus disease. Unfortunately we have not reached the point where the roentgenologist and the rhinologist can agree upon the diagnosis in a certain percentage of cases, but careful studies of this sort and better teamwork will help to reduce their number as time goes on.



PHILIP C. MEANS, M.D. (103 East Micheltorena Street, Santa Barbara)—In the treatment of disease under institutional care and in organizations such as the army and navy the obtaining of help furnished by the laboratories is insisted on. Errors of judgment may be overlooked, but not failure to use all available means in diagnosis and consultation. The careful physician should be and usually is anxious to do this. It adds to the cost of sickness, but there are few communities where it is not available at reasonable price if the financial conditions are fairly set forth. Carefully selected it is of mutual value to patient and his physician.

I do not feel we are in much danger of overestimating the importance of focal infection in constitutional disease. Our best men find and insist on the removal of suspicious tonsils and devitalized teeth. But unless pus was profuse in the nose or sinus symptoms were pronounced the possibility of a sinus focus has been frequently overlooked. Chronic postnasal catarrh is quite frequent. One might almost be tempted to call it nearly universal. Some people keep quite well in spite of it, and it probably may be disregarded. But in lowered vitality, in the presence of heart or kidney or other constitutional disease, where treatment is slow in producing results, it may be the one factor that is preventing improvement.

Teamwork between the attending man and the specialist is essential. Diagnosis of sinus disease by examination, transillumination and x-ray has become fairly sure with the exception of the sphenoid. Its location has made these methods uncertain. With the introduction of the Granger method great help has resulted. It does not sound logical. We cannot at first realize that the thickening, broadening or fading of a line of shadow can mean what he claims, but I am convinced that if we will accept it and use it and check up on results in examination and treatment we will be convinced. I am now accepting the findings of the roentgenologists whom I know have the proper method and skill and discounting my inability at times to corroborate them on examination. And by going ahead and treating such cases I have many times helped the patient to get rid of a toxemia that was holding him back and blocking his doctor's efforts. I may not cure the local condition, but I relieve him of the excess weight of the load that was overbalancing his recuperative powers.

From this experience I feel that I cannot too strongly urge reliance on the Granger technique in these cases. I am satisfied with nothing less and insist on its use.

The physician must win the good will of the public. However skillful your science, however dignified your conduct, you cannot impart to advantage the good within you unless you hold the confidence of your people. You must understand man and the public's state of mind. You who are interested in life, who must listen to naked truth, who must hear the confession of shameful sin, need character and gentleness. Avoid gossip. Silence is better. Nor need I warn you against gambling, drunkenness, sexual excess and anxiety for fame.—Fushi Ikai No Ryaku.

## PERIFOCAL INFILTRATION IN JUVENILE TUBERCULOSIS\*

WITH CASE REPORTS

By ERNST WOLFF, M. D.  
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DISCUSSION by Lloyd B. Dickey, M. D., San Francisco;  
Max Rothschild, M. D., San Francisco; Isabella M.  
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IN 1916 Ranke<sup>1</sup> advanced a modern classification of tuberculous infection based on a large series of clinical and pathological studies. He recognized three stages of the infection: (1) primary infection, (2) generalization, and (3) isolated organ involvement. Certain cases, however, show more involvement of the lung parenchyma than is usually found in Ranke's first and second stages, but in contrast with the third stage, a surprising tendency to heal. This process is explained not as a dissemination of tubercle bacilli, but as due to the cellular reaction around the central focus containing the tubercle bacilli.

### PERIFOCAL INFILTRATION

The bacillus of tuberculosis is never found in this zone, the tissues being saturated with serum and lymphocytes. To describe this peculiar condition the term "perifocal infiltration" is used. Today it is generally believed (Tendeloo<sup>2</sup>) that toxic products diffusing from the bacillus cause the special tissue reaction; while only the presence of the bacillus can lead to tissue destruction as happens in the focus. Perifocal infiltration, therefore, is a relatively benign tuberculous lung involvement.

In reviewing the literature concerning benign tuberculosis before the days of x-ray, only the most extensive lung involvement was diagnosed. This was the splenic pneumonia of Grancher. With the development of x-ray and tuberculin tests, benign forms were recognized by Eliasberg<sup>3</sup> (epituberculosis) and Engel<sup>4</sup> (paratuberculosis). Less extensive forms were described by Sluka<sup>5</sup> as "hilum tuberculosis," when the process was in continuity with the hilum; while Wessler<sup>6</sup> used the term "hilum pneumonia" when the focus was in the lung tissue separate from enlarged mediastinal glands.

### SYMPTOMS AND SIGNS

The onset may be acute, with high fever and symptoms of pneumonia, or insidious with slight subfebrile temperature, sometimes even without cough. Measles, pertussis or trivial infections of the respiratory passages may have preceded the onset.

Physical examinations reveal either consonant râles, which disappear with the progress of the infiltration, or dullness with diminished breathing. Sometimes there may be diminished bronchial

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\*Read before the Pediatric Section, California Medical Association, at its Fifty-Sixth Annual Meeting, April 25-28, 1927.



breathing in an area which extends beyond the border of the lobe. The area of infiltration may vary in size while the patient is under continued observation. Râles are present in only a small percentage of cases. The pleura is sometimes involved, but the exudate is small and does not dominate the clinical picture. Children with extensive objective findings often have few symptoms of discomfort. The fever, if present, soon subsides. The general development of the child is not impaired. Though bacilli are rarely found in the sputum, their presence does not affect the favorable course of the local infiltration. X-ray shows diffuse dark shadows even involving the whole lung field of one side. These shadows disappear gradually after weeks, months or years. In later x-ray graphs we detect signs of fibrous change or increased vascularity. There may be small calcified areas in the center of the previous process.

#### SPECIFICITY

Various observers (Langer<sup>7</sup> and Redecker<sup>8</sup>) noted the appearance or reappearance of these infiltrations following tuberculin reactions. In all children with perifocal infiltration a very marked skin reaction to tuberculin is seen. In 90 per cent of these cases of benign tuberculous lung infiltration, recurring superinfections occur through contact with open tuberculosis. A destructive lung process may appear on the same side or the opposite side before or after resorption of the benign infiltration.

#### DIFFERENTIAL DIAGNOSIS

As for the lesser forms, differential diagnosis is made by epidemiological and immunological considerations, in conjunction with the x-ray picture.

In the more extensive forms, clinical findings facilitate the diagnosis. The onset of chronic non-tuberculous pneumonia is revealed by more acute lung symptoms, accompanied by fever which usually remains high for several weeks. In these cases the lower lobes are usually affected. The final results of chronic pneumonia after definite tissue changes have occurred are usually organization and fibrosis associated with persistent signs of consolidation. Often the differential diagnosis of benign lung infiltration from destructive tuberculous lung processes can only be made after a certain period of observation. Gelatinous infiltration, which may give similar signs, undergoes caseous metamorphosis within several weeks but not later than three months after onset, and is always associated with increasing marasmus.

#### CASE REPORTS

In connection with the foregoing discussion two case reports may be of interest.

**CASE 1.**—Moses O., Japanese boy, age three and one-half years, lived in the same house with a man suffering from pulmonary tuberculosis. Two children of this man had recently died with tuberculous meningitis. The patient and his sister had measles the year previous and bronchopneumonia two months before observation. The sister developed tuberculous meningitis subsequent to the bronchopneumonia and died.

The boy felt well until two days before entry, when he developed an afternoon temperature of septic type. Cough was only occasionally present. No subjective discomfort and no complaints were noted.

**Physical Examination.**—Patient was of medium physical development, weight 15.6 kilograms. He had carious teeth, and injected and enlarged tonsils. Thorax showed signs of rickets. Lungs showed percussion dullness over right subscapular area extending to anterior axillary line. Auscultation: markedly diminished breathing over dull area, also considerably diminished over the entire right lung, anteriorly and posteriorly; no râles. Other organs were normal.

Temperature normal; respiration 20 to 23 per minute. Blood: hemoglobin, 55 per cent; red blood cells, 4,500,000; white blood cells, 12,550, with polymorphonuclears 79 per cent; slight secondary anemia. Tuberculin reaction: marked induration and erythema after twenty-four to forty-eight hours. X-ray examination: On November 30, 1926, showed marked enlargement of the mediastinal glands. Circular shadow of four centimeters diameter in the right inferior lobe in which three areas the size of a pea of increased density with indistinct outlines could be distinguished. Two weeks later the x-ray picture showed the round shadow at the right base increased, uniformly dark and more sharply outlined than in the first picture.

Re-examination on January 18, 1927, showed dullness in axilla diminished. Breath sounds more equal on both sides, anteriorly, marked diminution on the right. In the x-ray examination the shadow had almost completely disappeared. Development since discharge has been normal.

**Comment.**—This was a runabout child with a definite exposure to tuberculosis. After two days of illness, with septic temperature and its drop to normal, the child developed a lung process, which gave localized clinical symptoms of infiltration without râles, and showed a round shadow in the x-ray picture. There was a diminution of clinical symptoms and disappearance of the shadow after a month and a half. This round form of shadow is seen only in lung abscess, neoplasm or echinococcus. None of these affections fit the clinical findings nor the quick disappearance of the shadow. The lack of râles and the increasing pathologic findings in the x-ray picture, fourteen days after the temperature became normal are sufficient to exclude the diagnosis of acute or subacute pneumonia.

The sister of the patient (in analogy to a case reported by Armand-Delille<sup>9</sup>) had developed generalized tuberculosis while living under the same epidemiological conditions, in contact with a case of open tuberculosis. Marked enlargement of the mediastinal glands and strong tuberculin reaction were found. All these facts taken together strongly support the assumption that the underlying process should be regarded as perifocal infiltration in juvenile tuberculosis.

**CASE 2.**—Helen H., age twelve years, American, had no history of previous contact. She had measles at the age of two years, influenza when five years of age, pertussis at six years—all of normal duration and without sequelae. She was admitted to the Children's Chest Clinic on September 10, 1925, with a complaint of a dry hacking cough of two weeks' duration. No temperature and no sputum.

**Physical Examination.**—Showed a decidedly undernourished girl, weighing 59½ pounds (ideal 68 pounds), but alert and energetic. Lung examination: marked dullness at the left base posteriorly. Vocal and tactile fremitus decreased over the left upper lobe and at the left base. Bronchovesicular breathing over



the area of dullness was heard without râles. The D'Espine's sign was elicited to the eighth dorsal vertebra. The tuberculin reaction was strongly positive. The x-ray revealed an area of infiltration extending outward from the left hilum into the region of the interlobar septum. Increased bronchial markings in both upper lobes, particularly the left lobe; diaphragm on the left higher than on the right side. Diagnosis (of roentgenologist): old peribronchial tuberculosis and interlobar pleurisy.

During the following eighteen days the cough gradually disappeared and the girl gained four pounds in weight. Twelve months later she was only three pounds underweight and had no symptoms. Re-examination two years after entry; the child looked well and had the ideal weight. Over the left lung paravertebral dullness between the second and fourth thoracic vertebrae was noted. The left lower border was less movable and there was limited expansion on the left side.

X-ray findings: Increased density extending from the left hilum has entirely disappeared since 1925. There is nothing that would suggest tuberculosis at the present time. Small calcified glands are seen on the side of the previous infiltration. Left bronchopulmonary glands are sharply outlined and calcified.

*Comment.*—There is no connection between the previous infectious diseases and the observed lung condition. The beginning of the infiltrative process was insidious without systemic symptoms. Malnutrition was the only sign of disease. The physical findings pointed to a localized infiltration with functional impairment of the left diaphragm. The unproductive cough was due very likely to irritation of the pleura mediastinalis. After two years the pathologic shadow was gone; and only small areas of calcification were still seen. The small calcified bronchial glands had no connection with the calcified nodules in the lung tissue. The position of the diaphragm was normal. Since we had no signs of adhesions the remaining impairment of diaphragmatic function might have been due to the involvement of the phrenic nerve within the pathologic hilum process.

Concerning the differential diagnosis there was no need in this case to consider chronic unresolved pneumonia because of the negative past history. Two nonspecific conditions only recently described must be included. In the peribronchial pulmonary infiltration of Heiman and Cohen,<sup>10</sup> râles are likewise absent, divided bronchial breathing and bronchophony, but the x-ray shows either fine mottling or only accentuation of markings, which are sometimes difficult to interpret as pathologic changes. In the subacute pulmonary infiltration of Peshkin<sup>11</sup> definite shadows in the x-ray picture are seen too, but physical signs of bronchitis are a constant feature, which was not true in this case under discussion.

No definite contact was known. The tuberculin reaction was strongly positive. The diagnosis of a specific lung condition could be based only on the exclusion of all other possibilities. This triangular shadow, however, the so-called Sluka triangle on the hilum, with the apex pointing to the lung, is described in the literature from various

clinics as typical hilum lung infiltration in connection with active hilum tuberculosis.

#### CONCLUSIONS

1. Perifocal infiltrations are reparable inflammatory processes around tuberculous foci in lung tissue or glands.

2. The new methods of medical analysis, mainly x-ray, the results of immunology and the following up of tuberculous contact cases in special clinics revealed these benign processes and threw a new light upon the prognosis of certain forms of juvenile tuberculosis.

3. In many cases of active tuberculosis in children, areas of inflammation are found around specific foci of lung tissue or bronchial glands. The foci contain the *B. tuberculosis* and the specific reaction products of the body. Only these nuclei undergo destruction and calcification. The perifocal inflammation is resorbed like any other nonspecific inflammatory process.

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#### DISCUSSION

LLOYD B. DICKEY, M. D. (Stanford University Medical School, San Francisco).—The reason that Ranke's classification has not as yet been generally accepted in this country is probably because of the fact that there is in it no proper place for cases such as Doctor Wolff discusses.

From the standpoint of the clinician it is desirable to classify cases of tuberculous infection early. It is especially desirable to know early, if possible, what course a tuberculous infection will take in an infant. During the course of our work at the Stanford children's clinic, pursued with the help of the San Francisco Tuberculosis Association, we have seen a considerable number of infants and young children with definite histories of intimate exposures, with markedly positive tuberculin reactions, some with symptoms and signs, and some where these were minimal. Those without signs and symptoms did not develop later, evidence of tuberculous disease. Many of those showing symptoms and signs, and which we might classify as "perifocal infiltrations," recover completely. It would be a source of great satisfaction if we could prognosticate these cases without having to wait a year or more to determine what the outcome will be. This may often be done, as Doctor Wolff suggests, by the intensive follow-up of tuberculous contact cases in special clinics. It is much more important to make an intensive study of a suspected tuberculous infant for several weeks, such studies to include temperature recordings and serial roentgenological observations, than it is to make a casual study extending over a period of a year. It is only by an intensive study that



we can determine between a benign and a progressive tuberculous infection. This determination, as early as possible, is important for the child, for the family, and for the community.

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MAX ROTHSCHILD, M. D. (384 Post Street, San Francisco).—Perifocal infiltration is frequently found in pulmonary tuberculosis of children as well as of adults. In cases of this type which have come to our notice, the subjective symptoms frequently do not seem to coincide with our findings on examination—we hear moist râles over a rather large area, and one would assume that such patients should present, from a clinical standpoint, a good deal more pathology than they really do. When such patients are put at rest this large area of infiltration disappears quickly and recovery is unusually rapid.

The findings on auscultation remind one very much of the focal reactions which we notice after injections of old tuberculin, when these injections are given either for immune biological and diagnostic purposes or in a faulty manner for therapeutical purposes (such reactions should, of course, be strictly avoided). For these reasons the paper of Doctor Wolff is of great practical interest; but whenever these perifocal infiltrations are found and are due to a tuberculous involvement, then I always consider them as not belonging to the "Primary Complex" group. I have always doubted the practicability of Ranke's classification. When one considers only the state of immunity or the way of propagation of infection, then it is of value, but there is danger that Ranke's classification could easily be confused with the clinical classification of the three stages of pulmonary tuberculosis, which of course differs most definitely from Ranke's classification of the pathology present. When the tubercle bacillus has passed the regional lymph nodes and has invaded the lung parenchyma we might consider this clinically still an incipient case of the first class, while, according to Ranke, it belongs to the advanced group. This division into "stages" has led to confusion, as it depends too largely upon the personal equation of the examining physician. Now if we adopt Ranke's classification it could easily be possible that a greater confusion might be the result, unless one would be most careful in one's statements regarding classification.

Doctor Wolff is very right in emphasizing that it is not always easy to differentiate between tuberculous and other infections when these perifocal infiltrations are found in children. X-ray, as well as skin tests, are not always decisive factors. Both are at times misleading, and one has to bear in mind always the possibility of an unusually light pneumonic condition and not a specific infection, when these perifocal infiltrations are encountered in children, particularly those that clear up very rapidly.

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ISABELLA M. CLINTON, M. D. (Stanford University Medical School, San Francisco).—Doctor Wolff has called a much needed attention to the fact, that all infiltrations about a tuberculous focus are not necessarily of the tissue-destructive type. Only too often this allergic phenomenon when found in a tuberculous individual is the sole indication for pneumothorax therapy, instigated on the theory that unless the consolidated lung is compressed it will caseate.

We have had under observation at the San Francisco Hospital chest clinic a family of five children, all tuberculosis contacts who represent a perfect nest of these "perifocal infiltrations," and who demonstrate just this point that Doctor Wolff has emphasized. One child had an apical consolidation, another a dense basal infiltration (this latter with positive sputum), and the remaining three showed marked hilus involvement. Yet with all this pathology these children have remained well, and for one year, while under clinical observation alone, they persistently remained overweight in spite of poor home control, huge tonsils and extensive dental caries. Their chest pathology, identified chiefly by x-ray, is gradually simmering down

to fibrosis, calcification, peribronchial scarring and hilus thickening.

Another point in Doctor Wolff's paper which I think is of great importance is that these perifocal reactions clear like "any other nonspecific inflammatory process." These scars that are later found within the lung (excepting calcification) have not been proven to be due entirely to tuberculosis, and the association between chronic upper respiratory infection, hilus thickening and peribronchial scarring is seen too often to be disregarded. The San Francisco Hospital chest clinic has a splendid opportunity to see many of these cases, for in San Francisco there is a great deal of sinusitis. Because of the similarity of the symptoms of sinusitis to tuberculosis, often children are brought to the clinic as actively tuberculous, and so diagnosed, because of a chest film that shows hilus thickening and peribronchial scarring; but by clearing the upper respiratory infection their symptoms disappear. We have yet to see whether the scarring is permanent.

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DOCTOR WOLFF (closing).—Juvenile lung tuberculosis is again a new field of clinical investigation, owing to Ranke. Concerning Doctor Dickey's remarks, I wish to emphasize the point, that the mentioned cases clearly belong to Ranke's secondary stage, inasmuch as destructive and fibrotic processes are negligible. Doctor Rothschild's fear of impending confusion, if we adopt Ranke's classification, does not seem to be justified as far as juvenile tuberculosis is concerned. Ranke's secondary stage of tuberculosis infection of the human organism is not "advanced" in the sense of Turban Gerhardt's classification of pulmonary tuberculosis.

Turban Gerhardt's classification applied upon the mentioned perifocal infiltrations, involving a whole lobe with discharge of bacilli, leads to the possibility of gross error concerning the good prognosis of those cases.

## ANESTHESIA IN OBSTETRICS\*

By FRANK W. LYNCH, M. D.  
San Francisco

THERE have been remarkable advances during the past twenty years of surgery. Operations performed a generation ago with high mortality are now done throughout this country with so few primary deaths that it almost seems incredible. This miraculous improvement is due to a better appreciation of the pathologic physiology of the body in general, a tremendous improvement in operative technique, and an almost unbelievable improvement in anesthesia.

In 1909 the American Gynecologic Society held a symposium on anesthesia. The discussion clearly shows that at that time anesthetics were given by interns in all of the larger hospitals in America; that even in London and New York there were few physicians who were practicing anesthesia as a specialty; and that all research in anesthesia was conducted on animals by men who were not primarily interested in human physiology and pathology.

During the intervening years the medical world has learned much concerning the action of anesthetics, and the changes that it causes in the body. We have been forced to revise many of our former views concerning ether, have seen new anesthetics developed, have learned why many

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\* Read before the Anesthesiology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



types of patients are bad risks for anesthesia, and have made much progress generally. Yet the profession as a whole has not yet appreciated that the pregnant woman as a class is never so good a risk for prolonged anesthesia as the very same woman in the nonpregnant condition because of the varying degree of acidosis that invariably attends the pregnant state, nor are such statements made in obstetrics textbooks.

#### METABOLIC CHANGES IN PREGNANCY

The French were not far wrong when they described pregnancy as the "delicate state." Every investigation of the blood during pregnancy shows a metabolic balance that is not quite normal. The  $\text{CO}_2$  tension is normally low and is reduced very much more in all of the so-called toxemias. Glycogen is stored in large amounts during normal pregnancy, yet there is much evidence to suggest that this is quite as much to provide pabulum for the fetal cells as to protect against a threatening acidosis. Certain it is that recent investigation shows that both fetal cells and cancer need much glycogen for growth and have much less need of oxygen than does normal and fully developed tissue.

Even if glycogen is stored normally in pregnancy to combat acidosis, it often fails utterly to do so in the presence of a moderately long anesthetic on a patient with nausea and vomiting of pregnancy. There are many known examples where such individuals have passed from a mild acidosis into a fatal fulminating toxemia as a result of one hour's ether given to permit of some surgical procedure in an acute abdomen.

Blood studies on dogs show definite metabolic changes from normal as a result of anesthesia. Stander, in 1927, found that the  $\text{CO}_2$  tension is considerably reduced by a half-hour's anesthesia of ether, chloroform, nitrous oxid or ethylene; the changes from ether being the most marked and those from ethylene being the slightest. Coincidentally there is a marked hyperglycemia, an increase in lactic acid, a slight increase in inorganic phosphates, and very little change in the nonprotein and urea nitrogen. These changes are almost identical with those found in the blood of women in eclampsia. While there may be criticism of these findings since asphyxia may also cause similar results and may have had an influence on the picture, there is no doubt but that the blood is changed by our inhalation anesthesia.

It might be argued again that the hyperglycemia in these cases is nature's method to combat this acidosis. Yet, while so doing, we must admit our scanty knowledge of the action of the enzymes that facilitate such a process. Enzymes are readily killed. It is not yet known whether those permitting the burning of sugar can change their accustomed habits and work in a different  $\text{PH}$  environment. We can say little more at present than that the blood changes just described undoubtedly indicate liver changes.

For these reasons we believe that surgery in pregnancy should be restricted to the minimum; performed as rapidly as is consistent with safety,

and be done under morphin and local anesthesia whenever possible. Certain it is we should limit inhalation anesthetics to nitrous oxid-oxygen or ethylene in any but cases of short duration.

#### ABDOMINAL COMPLICATIONS DURING PREGNANCY

Fortunately nearly any abdominal complication demanding surgical interference during pregnancy can be operated without need of much abdominal relaxation. The offending structures usually can be brought up into the wound and there treated, and it is not often necessary to work in the depths of the pelvis or abdomen. Appendices and twisted ovarian cysts may be removed under local anesthesia. Personally I feel that the  $\text{CO}_2$  tension in the blood should be known before resorting to inhalation anesthesia during pregnancy, since few may judge how long an anesthesia may be necessary until after the abdomen has been opened and the pathological condition has been investigated. An unfortunate experience with a difficult appendix years ago made me much afraid of ether. The patient was five months pregnant, was vomiting several times daily and came out from the anesthetic to pass two days later, in spite of glucose injections, into a fatal toxemia. I have seen also a similar case in consultation. Local anesthesia can always be followed up with nitrous oxid and oxygen or ethylene oxygen if it proves necessary. We must keep in mind that abdominal complications during pregnancy cause a blood picture different from that seen when an operation is designed merely to deliver at full term, because metabolic disturbances invariably follow the gastro-intestinal upsets which form part of the symptomatology of the acute abdomen.

#### ABORTION

Therapeutic abortion usually is not a long operation although it can be done easiest when there is complete muscular relaxation. There is much actual danger of perforating the uterus if the patient is tense or struggles and is not under fairly deep anesthesia. They bleed more freely under gas and oxygen or ethylene oxygen than they do under ether for which reason I prefer the latter if the patient is in good condition. Yet in event the indication for abortion is uncontrollable vomiting, now fortunately a rare condition, or pulmonary tuberculosis, or diabetes, inhalation anesthesia of no type is permissible. Infiltration of the cervical edges and parametrial bases with one-half of one per cent novocain or sacral anesthesia is practical and much more safe.

#### CESAREAN SECTION

There is no doubt that ether passes over to the child and may cause fetal death. I know of many such instances. Every surgeon who has used both ether and nitrous oxid-oxygen for cesarean has been forced to admit the fact that the child born under ether very often has to be resuscitated, while the one born under gas and oxygen usually cries as soon as born. This statement holds true in cases which have not been given morphin before beginning the anesthesia. Morphine should



not be given before the delivery of the child by cesarean since occasionally it passes over to the fetus and inhibits respiration. I have seen several fetal deaths which must be attributed entirely to morphin. Some, as Harrar in New York, do not admit this possibility, yet to me a few positive cases are of more weight than many hundred negative ones. Personally I have not used morphin or ether for more than twenty years in cesareans. I have had no experience with ethylene in such cases and by choice use nitrous oxid-oxygen. Heaney, De Lee, and others report increased bleeding with ethylene during this operation although it is not sufficiently great to constitute a complication. In patients with cardiac or nephritic complications, the operation should be done under local anesthesia. This method has been known for more than thirty years and has been described and redescribed intermittently since the late 90's. It again has a wide vogue although personally I never use it without definite indication. It always seems brutal to me unless the patient's mind has been dulled by scopolamin or morphin, which drugs I feel should not be given before this operation.

#### VERSIONS AND FORCEPS

Version is difficult to do under spinal or nitrous oxid-oxygen anesthesia, which seldom give adequate muscular relaxation. Even ethylene may not give the desired results and ether is often necessary. There is comparatively little danger from ether at such a time since the operation is short. Moreover versions are unusual in the experience of most well-trained obstetricians. Forceps can be used equally well with the patient under nitrous oxid or ethylene oxygen or lumbar-sacral anesthesia. The latter is ideal in event of serious lung conditions. If nitrous oxid-oxygen is used the patient may be allowed to come out of deep anesthesia and assist in the delivery while under analgesia by efforts at expulsion after the forceps application.

#### ANALGESIA AND ANESTHESIA IN NORMAL LABOR

Most women of the present day desire protection from the pains of labor and there are many methods in common usage. None of these are entirely free from objection.

Ever since I was a house officer in obstetrics I have been interested in this problem and have had practical experience with all of the various methods. My own opinion is that it is not a simple problem and is even now very far from a proper solution. It is one thing to control the pains in the second stage and quite another matter to control the pain in an entire labor. There is no doubt but that pain during the second stage of labor can be controlled fairly well in nearly all women by any of our inhalation anesthetics given to produce analgesia and not surgical anesthesia. Some of us, however, are inclined to forget how much nature does to help the woman during this stage. Her rapid short respirations no less than her straining and bearing down have a marked

effect in reducing the pain accompanying the forceful contractions.

*Chloroform* or *ether* may be used *a la reine* safely for a few pains, but if continued for an hour or more they are most likely to be dangerous. Both drugs impair the efficiency of the uterine contractions and favor postpartum hemorrhage. I have never been able to subscribe to the belief that pregnancy makes a woman immune to the well-known dangers of chloroform. An experience of several thousand confinements in which the drug was used has led me to the opposite conclusion. I feel that the advocates of chloroform overlook the fact that only a dram or two of the drug is usually given, a dose so small that it is of comparatively little consequence. Surgical anesthesia with chloroform is, in my opinion, absolutely indefensible in view of the blood and liver changes shown by countless laboratory experiments confirmed by abundant clinical observations. Personally I know of several deaths following surgical anesthesia with chloroform which can be attributed to the drug. For this reason I have never used chloroform since entering private practice.

*Nitrous oxid-oxygen* has proved a true blessing to many thousands of parturient women. It can be used, I believe, with relative safety for a period of about two hours if given in analgesic doses and only during the contractions. A small amount of the gases are actually given by this method, not more than would be used in twenty minutes of surgical anesthesia. The proper method of administering the gas is most arduous. The physician should give the anesthetic before each contraction becomes painful. Otherwise the patient passes into analgesia with memory of pain and will insist that she has had no relief. It is important, also, to have the patient in the proper degree of analgesia. Usually too much gas is given. Patients must learn how to take it. Multipara learn most quickly. I seldom see the drug well given. Yet in spite of all of the above the method has proved of greatest value and is relatively free from objection. The uterine contractions are rarely reduced in force; more often they are stimulated. The anesthesia is not long stored in the body. For practical purposes we may say that the drug may be recalled from the body by taking off the mask in event of difficulty.

Personally I have had no experience with *ethylene* in obstetrics. My delivery rooms do not permit of giving it with safety since there is a burner in the preparation room but a short distance from the delivery room. Even were the physical arrangements better adapted for the purpose I would not be interested in using it since many of the explosions reported have occurred while ethylene was intermittently given. It is our business, moreover, to teach students to give anesthetics during delivery. Ethylene is not a drug to put in hands that have not had much training. There is no doubt that the proper degree of analgesia can be secured with smaller amounts of ethylene than with nitrous oxid-oxygen; also that larger amounts of oxygen can be used with ethy-

lene. Yet nitrous oxid and oxygen have been shown to be adequate for the purpose: there is no need of substituting a drug which may be found to be dangerous until it has been proved to be of greater value.

The head will pass painlessly over a perineum which has been infiltrated with a local anesthesia. The uterine contractions remain painful and the anesthetic often wears off before it is time to repair the perineum. *Lumbar or sacral anesthesia* will take away such pains, yet neither are suitable for routine administration. This anesthesia seldom lasts for more than an hour and neither method is absolutely free from danger.

There is no doubt, I believe, that routine analgesia by inhalations of nitrous oxid-oxygen during the second stage is a perfectly rational procedure. The conduct of the first stage, however, is an entirely different matter. I am not at all convinced of the safety of our present-day methods of first-stage analgesias, since none have been devised that do not prolong labor. In the last analysis forceful contractions are absolutely necessary for the success of labor. I have seen many tragedies in obstetrics, resulting from drugs which reduced the strength of the uterine contractions and which could not be recalled after once being given. One, a multipara, was given twilight sleep, which greatly prolonged her labor. The patient's general condition became such that the physician was induced to use bags to hurry up labor. He applied forceps two hours after the dilatation of the cervix and more than twenty-four hours after the onset of labor. The head was not engaged and the attendant could not deliver. Another young physician did a pubiotomy, but could not deliver until after craniotomy. The patient had spontaneously expelled a ten-pound baby in a former labor. A bad result with the pubiotomy kept the patient a month in the hospital. Many of the high-forceps cases in my service have been done on women exhausted by a greatly prolonged labor who had analgesia drugs given routinely early in their labor. In these cases strong forceful contractions were absolutely necessary for the success of their labors.

On the other hand, I know of many cases where women should have had protection from pain from the very start of labor. The fact that it was not given may have changed their attitude toward life for a very considerable period.

At the present time we select our cases carefully for drugs given early in labor and do not attempt it as an invariable routine. The woman should be in good condition and well prepared by careful prenatal care. There should be a proper relation between passage and passages, and the head should be in an anterior position unless it lies deep in the pelvis.

There seems to be much evidence that twilight sleep, the Gwathmey method, heroin, chloral and dial facilitate the dilatation of the cervix. For the last few years I have used the Gwathmey with some modifications and have discarded twi-

light sleep because it was less certain in action, carried more fetal risk and entailed more operative interference in our hands than the newer method. Dial has proved a good substitute for morphin and has been employed in a considerable series. My experience indicates that the Gwathmey principles reduce or abolish pain in 85 per cent of cases. It does, however, prolong labor. This must be expected, since the method depends largely upon ether for an analgesia of long duration and ether is ether no matter how it is given. Forceps were necessary to complete labor in 16 per cent of Gwathmey cases, in contrast with 10 per cent forceps cases in 2316 labors that had only nitrous oxid-oxygen as a second-stage analgesia. It does not seem reasonable that Gwathmey can ever be developed to take care of 100 per cent of cases. It takes three hours for the method to have its fullest action, and there are always women who deliver themselves before this period.

There is also some small chance of danger to the child from the morphin or possibly the quinin. For these reasons, we are using dial instead of morphin. While I have never seen a fetal death that could be attributed to the method, we have had many cases that required rather vigorous resuscitation methods which we never use without compelling indications. The innocuousness of quinin in labor is not yet proved although the risk to the fetus is probably very small. Yet quinin is necessary to strengthen the contractions which have been reduced in strength by the ether.

Our experience with allonal as a routine procedure is not favorable. It retards labor. The woman sleeps between pains and the contractions are not forceful.

The repair of the perineum is a surgical procedure. Routinely we use infiltration anesthesia which has proved perfectly satisfactory. We do not hesitate to use ether for a short period if the woman has not had an exhausting and long labor.

#### CONCLUSIONS

1. Metabolic changes normally present in pregnancy make the patient a worse anesthetic risk for abdominal surgery than she would be in a nonpregnant condition.
2. There is a wide field during pregnancy and labor for local anesthesia.
3. Chloroform has no place in obstetrical anesthesia except for a comparatively few minutes while the child is passing the perineum.
4. Ether should be given only when it is necessary to secure marked muscular relaxation, except for a few minutes for obstetrical analgesia.
5. Nitrous oxid-oxygen has proved its value as a relatively safe method for producing an hour or two of obstetric analgesia, and as a good anesthetic during cesareans and forceps extractions.
6. Ethylene oxygen may prove of great value if the dangerous factor of explosion can ever be eliminated.

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## PROBLEMS OF PREVENTIVE MEDICINE\*

By WILFRED H. KELLOGG, M. D.

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DISCUSSION by John L. Pomcroy, M. D., Los Angeles; John J. Sippy, M. D., Stockton; John N. Chain, M. D., Eureka.

THE French essayist, Montaigne, in the seventeenth century wrote, "Death from age is a rare, singular and extraordinary death." When Montaigne made this comment the average length of life was twenty-five years in Europe, as it is today in India. In those countries which, from the standpoint of sanitation are more progressive, the average length of life is now approximately fifty-five years. Yet the observation of Montaigne is still about as true as ever, for the principal saving of life has been at its beginning and not in its later years.

The advancement in modern preventive medicine is so recent that most of the extension in the expectancy of life has been accomplished in the last twenty-five or thirty years. This remarkable progress has followed directly and in consequence of the scientific advancement initiated by Pasteur when he founded the science of bacteriology about sixty years ago.

## PRIMITIVE MEDICINE

Since the earliest recorded history the cause of disease has been a great mystery and has been variously attributed to such factors as the wrath of the gods, to possession of the body by demons, to the stars and comets, to the humors of Hippocrates, and to miasmas. Superstition seems to be a basic attribute of the human mind. This is doubtless due to the fact that, in the evolution of the brain, the faculty of thought and the art of expression are in advance of the faculty of reason and the use of logic. Bearing this in mind, we may look more charitably and complacently on the present popularity of electric belts, the so-called magic horse collars, the replacement of dislocated vertebrae and all the various and sundry cure-alls, cults, isms, and pathies. The folklore of primitive man still lingers in the asafetida bag worn about the neck for the prevention of disease; in the efficacy of stump water in the cure of freckles; in the relation of the toad to warts; and in the carrying of a buckeye in the pocket for rheumatism. But our own is not the only period in which man has burst the bonds of superstition and applied a little reason to medical matters, nor is it the only period of sanitary accomplishment.

## HISTORICAL SANITATION

In Rome, if you visit the Forum, a guide takes you down a flight of steps to a landing where you can see the flow in the Cloaca Maxima, the great sewer built two thousand seven hundred

years ago and still in use. In Egypt there is a well three hundred feet deep that was dug three thousand years ago, doubtless with the idea of securing pure water. Hippocrates, the father of medicine, who lived five hundred years before Christ, advised the use of boiled water and dry dressings in surgery and taught that the hands and nails of the operator must be cleansed. His writings on epidemic disease, his intelligent use of a few drugs and his three books on hygiene and sanitation are remarkable, when one considers the very recent emergence of Greek medicine from the bonds of superstition. But with the fall of Rome, which had absorbed Greece and adopted her medicine, the knowledge of Hippocrates and of Galen was almost lost; during the Dark Ages superstition resumed sway and practically nothing was added to medical knowledge for a thousand years, till the appearance of Vesalius, Harvey, and later of Jenner. It was not, however, until Pasteur conceived the idea that disease was the result of a process comparable to the fermentation of sugar by yeast and, like it, due to micro-organisms that the cause of communicable disease was demonstrated to be microbial. Since then scientific progress has been most rapid.

## EXAMPLES OF PROGRESS

I need not recount the achievements of bacteriology and of protozoölogy; everybody is familiar with the many important discoveries in the etiology of the infectious diseases. The net results of these discoveries, however, in the control that has been brought about in certain diseases, is a story that is always fresh and that loses nothing of interest by repetition. By way of contrast with the unsolved problems of preventive medicine and by way of encouragement for a continuation of the battle, I will call attention to a few shining examples of accomplishment.

*Yellow Fever.*—From 1800 to 1879, yellow fever marched up from tropical America, entering the United States every year except two in that period, and from its first appearance in 1702 it entered the United States 112 times. In Philadelphia in 1793 occurred an epidemic comparable with the great plague of London in mortality, in the terror inspired and in the disorganization of society. People shut themselves in their houses, friends avoided one another on the street, the dead were carted to the cemeteries without attendance and terror was universal. In one epidemic in New Orleans there were 29,000 cases and 8000 deaths and in Memphis, 17,600 cases and 5000 deaths. Now, yellow fever is all but extinct, there being a few cases only in existence and these are in Africa. Now yellow fever is all but extinct, there being comparatively few cases in existence and most of these are in Africa. With the knowledge uncovered by the American Yellow Fever Commission—whose work is one of the most thrilling romances of modern medicine—General Gorgas in one year reduced the number of yellow fever cases in Havana from its usual quota of

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\* Read before the San Francisco County Medical Society, December 6, 1927.

hundreds to half a dozen and accomplished its entire disappearance in two years or more.

*Typhoid Fever.*—Twenty years ago the death rate in California from typhoid fever was 35.4 per hundred thousand. Last year it was 2.4. Typhoid infection is now almost exclusively a carrier or milk-borne disease. It is entirely possible to exterminate it, but this happy ending will probably not be successfully accomplished for many years because it will require a more general appreciation of the need for well-equipped health departments with full-time health officers than prevails at present, before such total elimination can be obtained.

*Cholera.*—In November, 1850, cholera, imported on a sailing vessel by way of San Francisco, appeared in Sacramento. The deaths soon rose to fifty and sixty per day. The wildest terror prevailed and the town was practically depopulated because the well fled to avoid the epidemic. The Hamburg cholera epidemic in 1892, with its nine thousand deaths, is known to all. But that New York City had thousands of deaths from cholera before the Civil War, and that the Mississippi Valley was periodically invaded by way of New Orleans, is not so widely known. Nevermore will cholera be epidemic where modern sanitation prevails.

*Bubonic Plague.*—Although bubonic plague has succeeded in establishing an endemic focus in California, we hope by intelligent application of our very complete knowledge concerning this disease to prevent any very serious human outbreak. So recently as in the fall of the year 1924, Los Angeles witnessed a somewhat virulent outbreak of pneumonic plague which would probably have resulted in great loss of human life, but fortunately it was discovered early and promptly gotten under control. In spite of that experience, the lawmakers of that city are still struggling with a rat-proofing building ordinance that has been proposed by the health authorities and the medical profession. Plague is primarily a disease of rodents and only secondarily a disease of man, so that measures of rat-proofing, food protection and proper garbage disposal, if efficiently carried out, are effective in protecting the human population. Such measures are necessary wherever this disease becomes endemic in the rodent population.

*Infantile Diseases.*—The attack in our own country on causes of infant mortality has resulted in a change within twenty years from a situation where in the average American community only 80 to 85 per cent of the babies survived the first year of life, to the present where from 93 to 96 per cent reach one year of age.

#### EXAMPLES OF DIFFICULT PROBLEMS IN DISEASE PREVENTION

Lest the recitation of these accomplishments of preventive medicine lead to the belief that most of the work has been done, let us consider some of the unsolved problems still to be attacked. In considering the magnitude of the task yet to be accomplished it is permissible, for purposes of

appraisal, to expand the term "unsolved" to include "unaccomplished" and to consider, therefore, not only those diseases and conditions in which no attack has been made, but those in which progress is far from satisfactory.

It will be noted that the few diseases that can be listed as already conquered are, if we except smallpox, controllable by means applicable to man's environment. With yellow fever and typhus fever, quarantine is unimportant. No procedure of vaccination is required and the war against the insect carrier is effective. With typhoid fever and cholera, sanitation of the environment so as to insure pure drinking water and proper disposal of wastes accomplishes the desired result, again without quarantine or immunization. The prospect of success apparently depends on whether or not science provides a means of warfare that does not conflict with the ideas of personal liberty of the people or which does not require too much individual effort or acceptance of scientific teaching.

*Malaria.*—Malaria occupies an intermediate position, because lack of money is the principal obstacle. In many localities in this country malaria is still a major public health problem, and in the tropics it is one of the principal causes of death; and yet we are in possession of all the facts necessary to completely control it, in addition to having a specific remedy for the cure of the disease. To completely conquer this scourge of the human race, that has been responsible in times gone by for the fall of empires, only requires money in the hands of those who know what to do with it, or knowledge in the heads of those who have the money, but who do not know what to do with it. It may not be generally known that malaria is one of the large public health problems in California and that the State Board of Health in one year expended \$10,000 for a demonstration antimalarial campaign in the northern Sacramento Valley. The result of this work was as usual; that particular district profited greatly and was duly thankful, but the example was not taken to heart by other communities equally in need. One is forced to conclude that education of the people to spend their money for health is usually a slow and discouraging process.

*Smallpox.*—Smallpox is an example of a disease that awaits only the general acceptance of scientific teaching regarding facts that are as obvious and as easily capable of proof as is the operation of the law of gravity. California at one time had a law requiring the vaccination of children as a prerequisite for attendance at school. The antivaccinationists succeeded in getting this law amended in 1911 to permit the filing of a certificate of conscientious objection instead of a vaccination certificate. The result has been that we now have a very large percentage of unvaccinated children, 80 per cent in some communities. In 1923 even this remnant of law was repealed and the people of California may now have, so far as public health administration is concerned, all the smallpox they want. As a result of all this laxity, smallpox in California is becoming a disease of



children as it was in Jenner's time. Going back to 1912 we find that the cases of smallpox in California in the first five years of the period intervening averaged 511 per year; in the second five years the average was 2683, and in the third five years it averaged 4263 per year. The deaths per year in the same period were 9.4, 9.8, and 74. In 1924 there were fifty-six deaths among 10,000 cases. In 1926 there were 236 deaths among only 2700 cases, showing the introduction of a virulent strain. It is plain that the practicing physician must bestir himself if anything at all is to be done toward diminishing the incidence and mortality from smallpox.

#### FACTORS ANTAGONISTIC TO EFFECTIVE DISEASE PREVENTION

In surveying the problem of prevention as a whole, particularly when a grouping of the various causes of premature death is attempted, segregating these according to knowledge of epidemiology in relation to results achieved, one is immediately impressed by three outstanding facts. First, the existing knowledge concerning preventable disease is far in advance of its application in practice. If all the people of the country were agreed on two postulates, certain causes of disease and premature death, such as typhoid and paratyphoid fevers, malaria, smallpox, diphtheria, syphilis, gonococcus infection, cholera, dysentery, hookworm disease, pellagra, plague, rabies, typhus fever and possibly tuberculosis would absolutely disappear and many of the causes of death in middle life which are due to infections contracted earlier would also be enormously decreased.

These two postulates are: (1) the requirements of preventive medicine for the prevention of disease are the best that are at present available. This of course carries with it the opposite concept that the preachments of the faddist and cultist and the ill trained generally are not to be considered at all; and (2) that preventive medicine in all its fields and divisions and whether applied by official community health agencies or by practicing physicians shall be supported by the people whole-heartedly, both morally and financially. We are, I fear, about as far from this golden age as we are from the millenium.

The second outstanding observation—and this is a real obstacle to realization of the golden age of health—is the personal nature of the most important of the known preventive measures. Smallpox can never be permanently exiled until the majority of our citizens accept the dictum of medical science that only vaccination prevents smallpox and demonstrate their acceptance by actually getting vaccinated. In other diseases the requirement is different but still personal. Personal hygiene is the big factor in the prolongation of life and the living of a better and happier life, and the medical profession is the means through which the people should derive the benefits from the advance of medical science.

The third outstanding consideration in attempting to attain the type of natural long life, the rarity of which was deplored by Montaigne, is

the size and strength of a division of the enemy not yet attacked—for the reason that adequate knowledge is lacking. The enemy appears almost invincible at present.

#### UNSOLVED PROBLEMS

In this division the following diseases may be mentioned:

*Influenza.*—Influenza is still with us, its cause unknown, its mode of spread only suspected, its immunology a blank. When it strikes we can only bury the dead. Neither incantations nor gauze masks, asafetida bags nor vaccines have the slightest effect on the progress of the epidemic.

*Cancer.*—Cancer stands high on the list of the causes of death. In 1919 in the registration area of the United States the deaths from malignant tumors were nearly 69,000. This was a rate of 80.5 per 100,000 of the population and was 6.3 per cent of all deaths recorded. Cancer was sixth on the list of causes of death and at ages over forty, it caused one death in eight among women, and one in fourteen among men. Cancer is definitely increasing in the mortality tables. Whether this is a real increase or is only apparent and due to better diagnosis or to a saving of life at its beginning, thus permitting more to arrive at the cancer age, is a matter now being debated by the statisticians.

*Diabetes.*—Diabetes is an important member of the "unattacked" group. Insulin is of no help in its prevention, however valuable it may be in treatment, but it is an important factor in prolonging life among diabetics. The mortality from diabetes has been steadily increasing for several years, more rapidly in fact than any other disease. In New York City in 1866 there was reported one death from diabetes to 2437 from other causes. In 1923 there was one diabetes death to fifty-one from other causes. In the registration area in the last forty years the death rate from diabetes has increased from 2.8 to 16.1 per 100,000. An epidemiologic study of the diabetes statistics points to a number of factors, dietetic, occupational, and racial. The advantage of frequent health appraisements by competent physicians is well illustrated in diabetes by such occurrences as the following related by Fiske. A middle-aged man who was about thirty pounds overweight, showed a trace of albumin and a few hyalin casts in his urine, but no sugar. He was warned about this condition and advised to have the urine examined periodically; in addition he was urged to have blood-sugar examinations made, a warning he ignored, and his physician did not encourage him to have this done because there was no sugar in the urine. This man died within eighteen months of diabetes.

*Heart Disease.*—Heart disease as a cause of disability and death is on the increase and now stands at the head of the list. Various surveys of various population groups show that 2 per cent of the population of the United States, over two

million persons, have heart disease in a more or less serious form. Under twenty-five years of age organic heart disease causes as many deaths as typhoid fever. Between twenty-five and thirty-five years it causes as many deaths as lobar pneumonia; between thirty-five and forty-five years organic heart disease causes more deaths than nephritis. After forty-five years of age it shows a higher rate than any other cause.

The extent to which diseases of the kidneys and heart, the so-called degenerative group, are due to the infections of early life is not generally appreciated. Ophüls in a study of five hundred consecutive autopsies, considered in relation to the clinical histories of the subjects, showed this relationship very conclusively.

The findings of the draft boards during the war were a shock to most persons, professional hygienists included. Practically half of the young men of the country between the ages of twenty-one and thirty-one, the age of best physical condition, showed defects and half of these were such as to exclude them from military service. Most of these defects could have been prevented or corrected in childhood.

The Life Extension Institute of New York has shown the need not only of better medical supervision in early life, but of a continuation by periodic physical examination of the apparently well, particularly in middle life. That organization has found in examinations of supposedly healthy people, engaged at work, 53 per cent with faulty vision uncorrected; 44 per cent showing faulty posture; 21 per cent with flatfeet; 16 per cent showing heart impairment; 12 per cent with combined heart, blood vessel and kidney changes; 25 per cent with well-marked arterial changes; and 26 per cent showing blood pressure changes of importance.

In 1500 routine x-ray examinations 17 per cent of the persons examined were found with enlarged hearts; 15 per cent with evidence of former tuberculosis; 4 per cent with active tuberculosis; and about 5 per cent with changes in the great blood vessels.

The economic loss in this country annually from preventable disease and death runs into billions of dollars.

#### CENSUS BUREAU AND OTHER STATISTICS ARE IN ACCORD

An examination of the Census Bureau report of deaths gives a startling picture of the incidence of these infections of early life that pave the way for many of the conditions just enumerated. These figures, so far as the preventable diseases are concerned, constitute a disheartening confirmation of the statement earlier recorded, that knowledge is in advance of application. Following is a list of the number of deaths in the United

States for the year 1920, from the principal communicable diseases expressed in round numbers:

|                                    |        |
|------------------------------------|--------|
| Typhoid fever.....                 | 7,000  |
| Malaria.....                       | 3,000  |
| Measles.....                       | 8,000  |
| Scarlet fever.....                 | 4,000  |
| Whooping-cough.....                | 11,000 |
| Diphtheria.....                    | 13,000 |
| Influenza.....                     | 62,000 |
| Tuberculosis.....                  | 88,000 |
| Meningococcus meningitis.....      | 5,000  |
| Pneumonia.....                     | 72,000 |
| Bronchial pneumonia.....           | 47,000 |
| Diarrheal diseases of infants..... | 38,000 |
| Puerperal septicemia.....          | 6,000  |
| Other puerperal causes.....        | 11,000 |
| Congenital debility.....           | 9,000  |

Aside from the matter of communicable diseases, increasing attention is being given to the physical condition of the children, and often through private agencies and school departments, instead of in health departments as it seems to the writer it should be. The results of various investigations of the problem show how tremendously important it is and cause the direct figures to be more understandable.

Wood of Columbia expressed the opinion that 1 per cent, or 200,000, of the 22,000,000 children of the United States are mentally defective; 250,000 have organic heart disease; 5 per cent, or 1,000,000, now have or have had tuberculosis and the same number have defective hearing; 25 per cent, or 5,000,000, have defects of the eyes, mostly correctable, but going uncorrected. Three to five million have adenoids, diseased tonsils or glandular defects; 10 to 20 per cent have weak foot arches, spines, or other joint defects. Nearly 25 per cent suffer from malnutrition; 50 to 75 per cent have defective teeth.

The child is best reached through official public health in the schools, but all other citizens, such as infants, preschool children, and adults are the field of the private practitioner, who should be also a practitioner of preventive medicine. This is not only a lucrative division of practice, but the doctor holds a grave responsibility in that he, better than anyone else can educate the people to a realization of the truth—that an ounce of prevention is worth more than a pound of cure.

#### FUTURE PROGRESS IN PREVENTIVE MEDICINE

Future progress in the prevention of disability and death must rest more on a better utilization of our present knowledge than on new discoveries. This knowledge has been accumulated as a result of progress in the basic medical sciences, not always made by doctors of medicine, it is true, but nevertheless the correlation and application of this knowledge is best made by physicians and the accumulated store of this special knowledge is in the custody of the medical profession. It follows, therefore, that the principal responsibility rests on the medical profession. We must accustom ourselves to thinking in terms of prevention as well as of cure. The increasing attention now being given to this important subject in many of our medical schools will result in better equipment



of the profession, but the courses are still too often tinctured with hold-over ideas from the very recent but completely finished period of predominance of environmental sanitation in public health. Not that this is no longer important, but it no longer dominates the field.

This is the age of personal hygiene; of personal responsibility; of medical sociology; and the sooner the fact is appreciated by those guiding medical education the better for the practice of medicine and for the recipients of its benefits.

#### RÔLE OF THE PERSONAL PHYSICIAN IN PREVENTIVE MEDICINE

The term "preventive medicine" is all-inclusive. It embraces all the special fields of hygiene: community and personal; public and personal health; and it embraces the activities of many workers, not all of whom are doctors. The public health nurse, the sanitary inspector, the bacteriologist, are all practicing preventive medicine in common with the physician who vaccinates the child or advises the mother. The physician, however, must be the leader and the director. I believe that an executive health officer should always be a physician. Not that a physician is *per se* a specialist in public health any more than he is *per se* a competent specialist in ophthalmology, but as the oculist needs first the training of a physician, so should the health officer have that foundation training. A few years before community sanitation became as generally applied as at present, the line of demarcation between public and private health was better defined than it is now, because physicians were then giving little thought to prevention, and sanitation of the environment occupied a relatively larger place in the war on disease than it now does. With the growing recognition of the importance of personal hygiene has come an expansion in the activities of health departments. School medical inspection, health centers, well-baby clinics, tuberculosis, venereal, and other clinics, seem at times to be in competition with the private doctor, but when these activities are properly directed there is no conflict between the two; on the contrary a symbiotic relationship should obtain, both deriving benefit from the association. The extent to which the doctors of a community fulfill their responsibility and take advantage of their opportunity to expand their practice in the field of prevention is the guide of the future in the development of health departments. Public health is a matter of education and the better the people are educated by their natural leaders in medical thought, the physicians, the more will they come to them in advance of illness and the less they will run after fads and fancies.

The public is keenly interested in health and the means whereby it may be retained; as the general support given to social welfare enterprises, to the tuberculosis movement, the growing support of official public health, the popularity of health magazines, even though many of these are the organs of quacks, testify. In this day and age the doctor who tells the man who has broached the subject of a physical examination he does not need it, is making a serious mistake.

The patient knows better and the doctor has immediately fallen in his regard. The doctor who is consulted by a prospective mother, and who allows the time to pass without taking steps to keep informed of the condition of his patient, is not only neglecting his patient, but making a mistake of policy. The doctor who attends a woman in confinement and fails to give her instruction in the care of her infant will lose in her estimation when she later obtains from the health center doctor or public health nurse the advice she so much needed. The doctor who receives with resentment instead of with appreciation the note from the school medical examiner to the effect that a child requires attention because of diseased tonsils or adenoids is out of step with the times. The doctor who lets months go by without advising the mother to bring her baby to the office at the third or sixth month for vaccination against smallpox; and again at one year of age for toxin-antitoxin, is neglecting a pleasant and profitable item in practice and encouraging a reputation for incompetence. The public are learning faster than some of us realize what is expected of a competent physician.

Preventive medicine is a door through which the quack and the charlatan cannot follow—it stands ajar; why not enter?

Hygiene-Pathology Building, University of California.

#### DISCUSSION

JOHN L. POMEROY, M. D. (330 North Broadway, Los Angeles).—Dr. Wilfred H. Kellogg has clearly brought out the serious need for the medical profession to practice more fully the principles of preventive medicine. Especially in California, with our rapidly growing population and the great activity of cults, the physician has an unusual responsibility.

It is the duty of the practicing physician to become thoroughly competent in all phases of hygiene and public health. It does little good to bemoan the desertion of the regular medical profession by large groups of lay people. In my opinion the medical profession must be aroused from many of their out-of-date ideas concerning organization and educational activities.

I endorse the views of Doctor Kellogg particularly in the fact that, if the members of the medical profession fulfill their entire responsibility, health departments can curtail many of their present activities. Many criticisms from physicians, of the present-day activities of the health department are entirely unjust, since these same physicians have failed to educate the mother in the care of the well baby, in vaccination and in annual examinations, regardless of whether patients are clinically sick or well.

I feel that this message should be driven home to the profession time and again, and that Doctor Kellogg has presented the matter in an able manner.

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JOHN J. SIPPY, M. D. (San Joaquin Local Health District, Stockton).—In the light of Doctor Kellogg's comment concerning the amount of preventive work which remains to be done, and the burden of the labor which must fall upon the medical profession, physicians generally should have a new appreciation of their responsibilities. It has always seemed incongruous for physicians to oppose the efforts of the public health worker. The public health nurse, for instance, may at times be overzealous, for she sees much neglect of health and hygiene; but after all the nurse who recommends any but the medical practitioner is as rare as the dodo. Medical organizations may disagree with the method of administration of the Sheppard-Towner Act; but the objections have



been largely hypothetical. Certainly the work carried on under that act has been beneficial to medical practice, and has speeded the growth of pediatrics. Preventive medicine, even though it may lack the spectacular, is more essentially a part of medical practice than surgery, and the public must be taught to make it proportionately as remunerative. The physician who says this cannot be done does not realize that medical silence is to a great degree responsible for public lack of appreciation of medical effort and aims. Let us hope Doctor Kellogg's paper will further the new spirit in the California profession.

JOHN N. CHAIN, M. D. (Fourth and E Streets, Eureka).—Doctor Kellogg's paper is provocative of a great deal of thought to one who has been doing pioneer work along public health lines for a number of years. It brings two kinds of thought: One is resentment against the average general practitioner for his lukewarmness or his total lack of appreciation of his responsibility in helping in this wonderful work and another resentment against the public for failing to value its health and help in its conservation. The second thought is a desire to construct a better working system whereby the public health worker can accomplish more even with the millstones of the noncoöperative practitioner and the don't-care public around his neck. Governmental control of health and sanitary conditions in the hands of competent workers would be a step toward the solution of many of our troubles. Their work should be constructive and educational and when necessary they should have the power of the police officer. I believe that our best efforts can be used in developing this system, and its influence will lead the general public and the general practitioner to follow. I do not believe that they will ever themselves arrive at leadership and, in the future as in the past, they will always be noncoöperative. The leaders in public health work will always be few in number because of the peculiar personality required for the work and the spirit of self-sacrifice and service that must exist. Probably in the medical schools too much attention has been given to effect rather than to cause. Scarlet fever has been studied as a definite cause for the effects shown, but prevention through eradication of the cause has been overlooked in studying the effect. Too little public health instruction, I fear, has been absorbed by the student at the time of graduation.

## THE LURE OF MEDICAL HISTORY

YOUNG AND HELMHOLTZ

The Master Minds of Medicine

By WILLIAM DOCK, M. D.  
San Francisco

WE are all familiar with the contributions to medical progress in the nineteenth century of men who were primarily scientists, notably Pasteur and Roentgen. I have heard it seriously urged that this fact, as well as the introduction of anesthesia by a dentist, proves the repressive effect of the medical education of those days on the imaginations of the regular students of medicine. Few physicians realize, and take pride in the thought, that two men, trained in the classical medical schools and engaged in the practice of medicine, first established fundamental concepts which were essential to the further development in physics and chemistry—the wave theory of light and the law of conservation of energy. How few of us, tuning in on bedtime yarns from the national conventions, know that the pupil of one of these physicians, carrying on the investigations



Plate 1.—Thomas Young. From an engraving by J. Thomson after a painting by Sir Thomas Lawrence.

inspired by his master, discovered the Hertzian waves now so cautiously parcelled out to the broadcasters.

Thomas Young and Hermann Helmholtz added generously to medical progress, but are rarely included in medical biographies because they left no school of trained physicians, and were not dramatic except in their achievements.

### THOMAS YOUNG

Thomas Young, a Quaker, born in 1773 in a small town near London, was from earliest youth eager to learn. At fourteen he was expert in the use and construction of instruments such as the microscope, and well read in biology, geology, and astronomy. He was familiar with French, German, Italian, Latin, Greek, Hebrew, and Arabic. The study of medicine he began in London under John Hunter, Baillie, Latham and others, and after a year in Edinburgh and a year in Göttingen, returned to Cambridge for three years. At twenty he had established, by his demonstration of the interference bands, the validity of the undulatory as opposed to Newton's corpuscular theory of light, and at this early age, five years before he received his M. D. from Cambridge, he had been elected to the Royal Society. On graduation he returned to London to the fortune, library and medical reputation of his uncle, recently deceased. While commencing practice he lectured for four years as professor of experimental philosophy in the Royal Institute. His experiments in physiology and his restless curiosity in many fields of learning continued throughout his life. His chief medical contributions were



studies in optics and vision; he also first used the kymograph and devised a simple method for measuring red blood cells, investigated climate, mortality statistics and consumption, wrote a widely used text on diagnosis and in his Croonian Lecture on Function of the Heart and Arteries, gave a sound analysis of the circulation, proving the purely passive rôle of the great vessels. Next to his discoveries in the physics of light, his most astonishing accomplishment was the deciphering of the Rosetta stone. The fragment contained Greek and Egyptian hieroglyphic and enchorial script. Young succeeded in translating much of the Egyptian, and established sound principles for the guidance of others in deciphering other unknown languages. He knew the worth of his accomplishments, but was not overcome by them and it remained for two Frenchmen, Champollion, in Egyptian, and Fresnel, in physics, to extend and force the acceptance of his discoveries.

He continued to practice all his life, never became a fashionable physician and is said to have "smiled incredulously at 'skill,' as it was called, and quoted Ecclesiastes without being pessimistic in his tendencies." He made ward rounds at St. George's Hospital, and though not a popular teacher his "Preliminary Essay on the Study of Physic" in the "Introduction to Medical Literature" deserves a high place among writings on medical education. Those who ascribe their ill success in practice to superior character will be abashed by his statement, "It must be a mistaken opinion that a man of great abilities is morally incapable of being a good physician." We have heard some talk of the young man's increasing difficulties in medicine, but the argument fails on reading his defense of prolonged study (in his own case eight years), "nor will there, in all probability, be any want of time for so extensive an undertaking: a sensible writer on medical education asserts that he has literally 'known a physician above fifty years of age objected to for his youth.' In a metropolis it is necessary that a physician be prepared, whatever his abilities may be, to pass at least ten years after his first establishment without the slightest emolument from his profession."

#### HERMANN HELMHOLTZ

Hermann Ludwig Ferdinand Helmholtz, a descendant on his mother's side of William Penn, was born in 1821, two years before the death of Young. Helmholtz was a brilliant scholar, but of such slender means that to secure his medical training he contracted to serve five years as army surgeon after graduation, and thus entered the Royal Friedrich Wilhelm Institute. He had readily mastered languages and for pleasure studied Hebrew and Arabic, as had Young. His graduation thesis described the origin of nerve fibers in ganglion cells, and while house surgeon at the *Charité* in Berlin, he studied fermentation and attacked the theory of spontaneous generation. As an army surgeon at Potsdam he continued his investigations of muscular metabolism, and in 1848 published his communication on the conservation of energy. This paper showed his



Plate 2.—Hermann Helmholtz. From a pastel by von Lehnbach.

capacity as a mathematical physicist; it also furnished the stable foundation on which all of our present theories of physics and chemistry rest, namely, the First Law of Thermodynamics, which affirms that when any quantity of energy disappears at any place an equal quantity appears in some other place or places. Humboldt, one of the leading scientists of Europe, an old friend of Thomas Young and one of a group of men who had closely followed Helmholtz' work, now procured his release from his army contract and secured him a position as lecturer in anatomy. The following year he became professor of physiology at Königsberg, where he remained six years before taking the chair of anatomy at Bonn. While at Königsberg he timed the rate of transmission of nerve impulse with extreme accuracy and showed that, contrary to previous assumption, it was much slower than the speed of electricity. In the same year he invented the ophthalmoscope. It is not without significance that these two discoveries, of great importance to medicine, resulted from study of questions arising in preparation and discussion of his class teaching. Later, at Heidelberg, he continued his studies on vision, the media of the eye, and on sound and the physiology of hearing. These problems led him into pure physics, and in 1871, after his only return to medical practice as hospital organizer in the army service, he returned to Berlin, first as professor of physics and later as chief of the Technical Institute. The study of vision and of light brought him to the interpreta-



tion and expansion of Clerk-Maxwell's theories of the electromagnetic nature of light. In the course of this work he led his pupil Hertz into the labors which eventually resulted in the discovery of wireless.

In the year before his death in 1894, he visited America accompanied by his family, and they were astounded by the fortitude of the farmers of the Great Plains, and the barbarous life in Chicago.

Helmholtz was interested in every phase of thought, and was a lover of music, poetry and mountaineering, and a man of remarkable charm and modesty. Though his popular lectures were clear and illuminating, his class lectures were followed only by a few of his students. He was able to guide and form many physicists from foreign lands when they came to work with him. His respect for the historic development of his discoveries was so great that he never urged his own priority and encouraged others who worked on the same lines to publish first, as in a notable instance when he and Cramer independently noted the alteration in the image reflected from the anterior surface of the lens during accommodation. Dr. J. Robert Mayer, another physician, had first realized the existence of the law of conservation of energy. Although Helmholtz' mathematical proof was independent of Mayer's vision, the former always upheld Mayer's claim of priority in this momentous discovery.

The lives of Young and Helmholtz show us how powerfully the medical profession of that day attracted men of great intellectual capacity, and how the educational methods not only failed to abate their energy but permitted their accomplishing creative work very early in life. Those of us who may incline to ascribe Young's success to his wealth and independence as well as his mental powers will look with incredulous admiration upon Helmholtz, recently married and on a full-time salary of \$600 a year, and yet, in his twenty-ninth year inventing the ophthalmoscope and precision instruments for timing the conduction of nerve impulses.

Stanford University Hospital.

Health and Child Welfare Work in Cuba—As part of Cuba's official antituberculosis campaign \$3,000,000 has been appropriated for the construction of tuberculosis sanitariums. Preventorium for children whose poor physical condition predisposes them to the disease will also be established. Plans have been made for the compulsory reporting of cases by physicians, the extension of the visiting-nurse system, the keeping of accurate statistics of cases, and the education of the public through motion pictures, lectures, and literature.

Cuba is planning also for a national child welfare congress, to be held next December, to continue for Cuba the work of the Pan-American Child Congress held in Havana last December. The committee in charge is under the chairmanship of the Secretary of Health. The five sections proposed are hygiene, medicine, psychology and education, sociology and legislation, and care for defective and delinquent children.—*United States Department of Labor.*

## CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

### RECORDING OF TREMOR—A NEW METHOD\*

WITH SOME ACCOUNT OF ITS CLINICAL  
SIGNIFICANCE

By HENRY G. MEHRTENS, M. D.

AND

PEARL S. POUPPIRT, M. D.  
San Francisco

TREMORS have interested medical men since the earliest times. Simple observation of the extremities was sufficient to elicit most of the information we now possess. Later, as more detailed and permanent records were required, devices were made utilizing the kymograph, levers, tambours, and finally the string galvanometer. Although these methods were productive of records exceedingly helpful in the understanding of tremor, our experience with them led us to feel that the inertia developed in the working of tambours, levers, etc., was a handicap and that the utilization of light as a means of registration might well give us records free from such objections. It seemed as if such an inertia-free apparatus would be particularly useful in recording the finer tremors especially those observed in the normal individual, because, in normal individuals an inclination to tremor is present. This innate tendency, with centers in cord and cortex, is balanced by an inhibitory mechanism with major centers in the basal ganglia, mesencephalon and cerebellum. Any pathological condition which tends to decrease the effectiveness of this inhibitory mechanism will result in tremor. Dr. S. A. Kinnier Wilson considers tremors as the outcome of the activity of a low-grade physiological mechanism released from a nonvolitional pre-spinal center.

#### DESCRIPTION OF APPARATUS

The apparatus shown in Chart A consists of a source of light, a lens, a timer, and a camera, equipped with a motor-driven continuous strip of sensitive paper. The hand is supported either at the wrist or the metacarpo phalangeal joint. To make a sharp record, an ordinary sewing

\* From the Neuropsychiatric Laboratories of Stanford University Hospital.

\* Read before the Neuropsychiatry Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30-May 3, 1928.

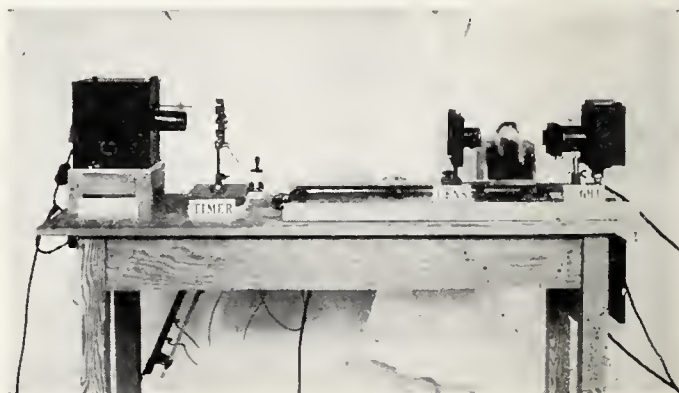


Chart A.—Apparatus Described in Text



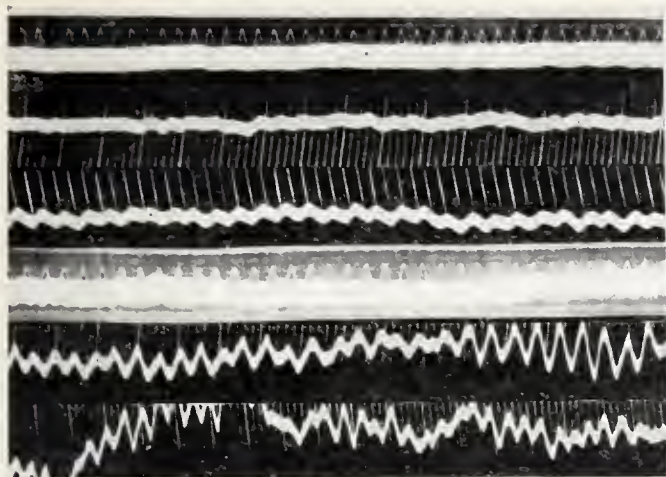


Chart B.—Types of Tremor Found in Normal Individuals

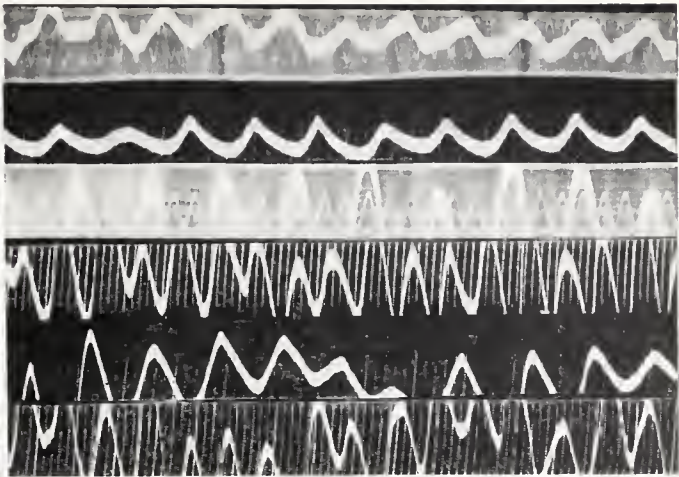


Chart C.—Parkinsonian Encephalitis

thimble perforated by a fine needle is slipped over the patient's finger. The shadow of the needle makes the record.

We soon found that the tremographic records taken from supposedly normal individuals differed in a marked degree. It was even possible to divide the normal records into groups, such as are shown in Chart B. The groups range from a barely perceptible tremor up to a rather coarse tremor with some irregularity. The rate in general varied between 9-15 per second. It was found necessary to repeat each record several times to be sure we were dealing with a typical tremor and to take the tremor under approximately standard conditions. In attempting to compare the temperamental make-up of the subject with his tremor a certain rough correlation was possible. Slight or absent tremor was found in individuals exhibiting little clinical evidence of emotional strain or tension. At the other end of the series, relatively coarse or irregular tremors were found in individuals showing clinical evidence of emotional lability.

Among the organic tremors the Parkinsonian type of encephalitis (Chart C) furnishes a typical coarse tremor, regular in rhythm and slow in rate, ranging from four to six per second. Alcohol generally is credited with producing a fine tremor. In our experience the alcoholic tremor will vary depending upon the stage of the disease. In the acute stage we found coarse tremors, in the

chronic stage a fine tremor. Paresis gave a fine tremor. Hyperthyroidism was another condition which did not fulfill the textbook picture. It is true that in certain chronic states we did find the classical fine tremor (Chart D) but when acute conditions were examined in patients showing basal rates of +60 to +70 the resulting tremors were very coarse. The feeding of large amounts of thyroid extract produced a coarse tremor quite comparable to those obtained in acute cases. It is possible to observe at times a fine tremor superimposed on a coarse one, perhaps indicating more than one factor at work.

Tremor induced by the injection of adrenalin did not change the rate, but only amplitude and regularity. Their resemblance to records made in acute hyperthyroidism is quite suggestive of a common mechanism.

Hysteria according to most authors, should give a coarse regular tremor. Our records (Chart E) were for patients whose diagnosis we felt certain, gave an almost uniform irregularity in amplitude. We are inclined to believe that some of the tremors in the literature labeled hysteria may well belong to our classification of the tense normal. Some insight into the difficulty met in treatment of the hysteric is brought out in the tremograph of a treated hysteric. Here, even after an almost perfect result was secured for some weeks, simple conversation about tremor brought out the fundamental instability of the nervous system. The re-

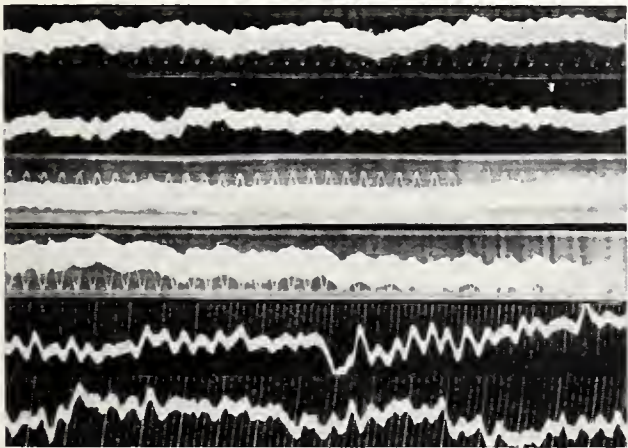


Chart D.—Hyperthyroidism

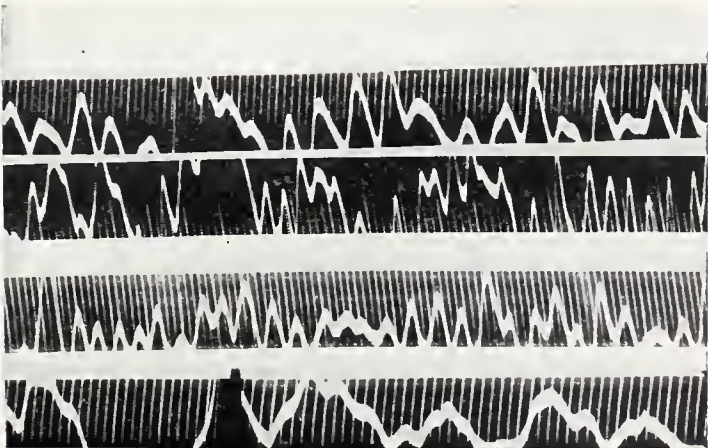


Chart E.—Hysteria



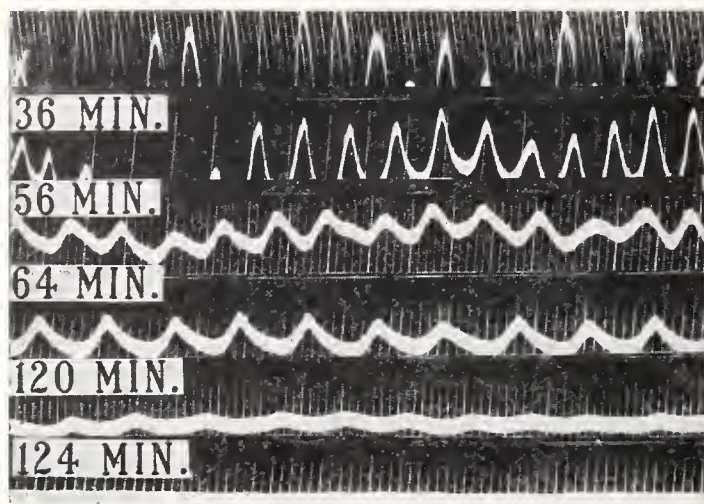


Chart F-1.—Effects of Hyoscin



Chart F-2

relationship of hysteria to simulation is well illustrated by the efforts of members of the house staff, after much practice, to simulate organic tremors. The results in no way resembled an organic tremor, but showed surprising similarity to hysterical tremor. This experiment suggests the possibility of an hysterical tremor being little more than an unconscious simulation.

In studying the effect of hyoscin upon organic tremor (Chart F) we found, as have previous observers, that the tremors are flattened out without changing the rate or rhythm. After the tremors were removed it seemed a propitious time to test out the reported hypersuggestibility of the patient under the influence of hyoscin. Psychic stimuli at first chosen at random were so successful in reproducing tremor that we worked out a series of test words including some of neutral character and some heavily weighted with emotion. The resulting tremor was directly proportionate to the intensity of the emotional stimulus. We next compared bulbocapnin with hyoscin. Both obliterated tremor. In either instance emotional stimuli re-established tremor, but bulbocapnin in every instance seemed the weaker of the two drugs.

Returning to our previous problem we tried out various psychic stimuli on the same subject with and without a previous injection of hyoscin. In both instances a neutral stimulus produced no variation in tremor, and a strongly emotional stimulus produced a definite variation in the tremographic records. The response of the patient under the influence of hyoscin seemed the more vigorous and prolonged.

From the above experiments it seems that tremor may be influenced by the emotional states. We hope to show in a later communication that this variation of tremor elicited by emotional stimuli may be of clinical usefulness. It is possible that the information so obtained may parallel and perhaps supplement the results given us by the psychogalvanic current.

#### CONCLUSIONS

1. The apparatus described above is simple, easy to operate, is free of inertia and is especially useful in recording fine tremor.

2. The normal individual exhibits tremor which can be divided into four types. These tremor

types roughly parallel the nervous tension found clinically.

3. Tremographic records of acute hyperthyroidism, induced hyperthyroidism as the result of feeding thyroid extract, results produced by injecting adrenalin, as well as some of the hysterical states all showed a similarity great enough to suggest some mechanism common to them all.

4. Our results would indicate a relationship between tremor and emotions. Variations of tremor elicited by emotional stimuli may ultimately turn out to be of clinical usefulness—even paralleling the results obtained from the psychogalvanic current.

5. Hyoscin would seem to amplify the emotional effect on tremor.

6. The greatest usefulness of these experiments is to increase our interest in such an important diagnostic sign as tremor.

Stanford University Hospital.

## CARCINOMA WITH MUCOCELE OF APPENDIX

### REPORT OF CASE

By M. HAWKINS TOPPING, M. D.  
Los Angeles

H. S., a man, age twenty years.

February 6, 1928, patient seen about midnight. Complained of severe pain in lower right abdomen.

**Family History.**—Mother died of some acute intestinal trouble. Refused operation.

**Personal History.**—Diphtheria (very bad case). Tracheotomy was performed at age of two. Tonsillectomy.

**Present Illness.**—On February 6, 1928, patient developed some pain in region of umbilicus which gradually increased in severity, and became localized in right iliac fossa. There was marked tenderness on pressure at McBurney's point. Patient became nauseated. On February 7, patient sent to hospital. After admittance pain became more intense; tenderness over entire abdomen. Patient had rather severe chill. As soon as possible after admittance to hospital he had a white blood count of 16,000. Patient operated for appendicitis. Specimen vermiform appendix.

**Examination, February 7, 1928.**—Specimen consists of appendix exhibiting marked variation from the normal. It is larger in diameter with inflammatory changes in the surrounding fat. Upon one side of it is a ruptured cystic cavity which apparently contained mucus and hemorrhagic contents. The whole mass measured 5.5 x 3 x 2 centimeters. The wall of the ap-



pendix is very thick, and in two places there are obliterations of the lumen; at the tip and near the base, there is also a yellowish diffuse mass in the mucosa near the base. At one place in the wall of the appendix there is a mucocele measuring 1.5 centimeter in diameter.

**Microscopic.**—Section through the yellowish colored mass in the mucosa shows it to be a carcinoma containing solid groups of cancer cells. Section through the wall of the ruptured cystic cavity mentioned above shows an inflammatory and hemorrhagic connective tissue wall.

**Diagnosis.**—Chronic appendicitis with appendiceal carcinoma and a mucocele. Apparently the carcinomatous tissue is completely removed. This type of carcinoma exhibits only a small degree of malignancy.

**Structure.**—Two main varieties of the tumor appear: (1) columnar cell or gelatinous adenocarcinoma, and (2) small polygonal, spheroidal cell alveolar carcinoma. The former type presents the same age incidence (fifty-two years) and general malignancy as other similar intestinal carcinomas, while the former occur at any early age and are almost invariably benign (Rolleston, Jones). Transitional forms of intermediate age incidence are observed.

Carcinoma of appendix has been recognized and emphasized by Elting, Maschkowitz, Batzdoff, McCarthy, Zaaier, Milner, McWilliams, Kudo, Roketansky, Balduf, Batzdof, Konjetzny, Kelly, and Neugibauer. The clinical course is merged with that of chronic appendicitis (McWilliams, Rolleston, Jones, Lit.), emphasizing the principle that each organ has its own form of carcinoma.

In conclusion, patient made a rapid recovery. So far no untoward symptoms of return.

Patient working every day.

1202 Brockman Building.

## JAUNDICE IN ACUTE INFECTIOUS MONONUCLEOSIS (GLANDULAR FEVER)

REPORT ON TWO CASES

By V. R. MASON, M. D.  
Los Angeles

A LARGE number of cases of glandular fever have been reported in recent years, and comprehensive summaries of the symptomatology may be found in modern textbooks and collective reviews. Jaundice as a prominent symptom or complication was reported first by Mackey and Wakefield<sup>1</sup> in 1926, and no other similar case has been recorded in the literature up to the present time.

Their patient was a white, male, twenty-three years of age, whose illness began with fever, sore throat, and glandular enlargement. On the sixth day of the illness jaundice was noticed, and the patient complained of dull epigastric pain. The tonsils had been removed previously. The liver and spleen were slightly enlarged and there was moderate general glandular enlargement. The leukocyte count was 15,800 per cubic millimeter, with 91 per cent mononuclears. The Wassermann reaction with serum was negative. No bile salts were present in the feces. No mention was made of bile in the urine. There was an immediate direct van den Bergh reaction with serum. The patient made a complete recovery and at the end of two months the blood counts were normal.

The two cases to be reported here are similar to the case reported by Mackey and Wakefield.

### CASE REPORTS

**CASE 1.**—A white, male, twenty-three years of age, became ill October 14, 1924, with malaise, fever,

coryza, nausea, and pain in the "pit of the stomach." There was considerable abdominal distress after eating. When first examined, October 20, 1924, his temperature was 102 degrees F. The superficial lymph nodes were all moderately enlarged. The pharynx was red and the tonsils were large and red. The spleen was felt just below the costal margin. There was considerable tenderness on palpation of the epigastrium, but the liver was not felt. The hemoglobin and red cell count were normal. The leukocyte count was 15,700 per cubic millimeter with 84 per cent mononuclear cells. The fever varied from 101 to 102 degrees F. each day. On October 25, 1924, there was more marked epigastric tenderness and the liver edge was felt at the costal margin. There was also moderate jaundice of the skin and sclerae. The urine contained bile. The feces were of normal color. The jaundice persisted for nearly two weeks. The fever gradually subsided and the patient made an uneventful recovery. January 23, 1925, the leukocyte count was 7300 per cubic millimeter with 37 per cent mononuclear cells and 62 per cent polymorphonuclear neutrophils.

**CASE 2.**—G. C. M., a white, male, twenty years of age, was taken ill March 2, 1928, with malaise, chills and fever. He was confined to bed for a week and then attempted to be about, but weakness, fever and night sweats forced him to bed again. His throat became tender and sore. When first examined, March 19, 1928, there was moderate enlargement of the superficial lymph nodes and marked jaundice of sclerae and skin. The tonsils had been removed previously, but there was a dirty, patchy exudate over the pharyngeal mucous membrane. The spleen was palpable just below the costal margin. The liver area was tender on pressure, but the liver was not felt. The urine contained traces of albumin and bile. The feces were of normal color and contained bile. The leukocyte count was 15,400 per cubic millimeter with 87 per cent mononuclear cells. Hemoglobin and red cell count were normal. Platelets were unusually numerous in the smears. There was a positive direct Van den Bergh reaction with serum. The icteric index was 39. A Wassermann reaction with jaundiced serum was doubtful, but later both Kahn and Wassermann tests were negative. The exudate in the pharynx contained many cocci and a few spirillar and fusiform organisms. The fever varied from 99 to 101 degrees F. for a few days, and then gradually receded. March 27, 1928, the leukocyte count was 8000 per cubic millimeter with 74 per cent mononuclears. The patient made an uneventful recovery.

**Discussion.**—The clinical and hematological features of these three cases are so similar and typical that it seems improbable that an error in diagnosis could have been made. A typical form of acute catarrhal jaundice was readily excluded by study of the blood smears, and acute leukemia was ruled out by the benign course. The blood picture of my cases differed in no particular from that observed in other examples of this disease and reported in detail by Evans and Sprunt,<sup>2</sup> and Downey and McKinlay.<sup>3</sup> Most of the mononuclear cells resembled those present in normal blood and contained many azurophile granules. There were also large numbers of lymphocytes, both large and small forms, some of which were apparently very young. In the cases of glandular fever which I have observed, the mononuclear cell formula of the blood has varied as described by Downey and McKinlay.<sup>3</sup> Histocytes have predominated in some cases and cells of the lymphocytic series in others. This is not remarkable since the organs grossly involved in the disease house the lymphatic and reticulo-endothelial cell systems. Sections of lymph nodes and tonsillar tissue reported on by Evans and Sprunt,<sup>2</sup> Downey and



McKinlay,<sup>3</sup> Fox<sup>4</sup> and Longcope,<sup>5</sup> showed no pathognomonic alterations. The striking alteration, however, was lymphoid hyperplasia with increase of mononuclear cells. It seems reasonable to assume that the blood pictures encountered in this disease might vary from case to case. I have seen outpourings of similar cells in great numbers in estivo-autumnal malaria, hemorrhagic smallpox, and sepsis. Similar "leukemoid" reactions have been reported in other conditions and have led to errors in diagnosis.

The platelets in glandular fever are always present in increased numbers from estimates of the stained smears of patients I have observed.

The cause of the jaundice in the three cases is of considerable interest. Mackey and Wakefield believed it was dependent either upon acute cholecystitis or pressure on the ducts by enlarged glands in Calot's triangle.

The occurrence of jaundice in three similar cases, however, makes those causes unlikely, and it would seem more reasonable to assume that an acute hepatitis with disturbance of the excretory function of the hepatic cells from swelling and inflammation led to a high bilirubin content of the blood stream with visible jaundice.

523 West Sixth Street.

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### COCCIDIOIDAL GRANULOMA

#### CASE REPORT

By PAUL R. WALTERS, M. D.  
*Dinuba*

THE appearance of an unrecognized disease in this community among several of the same nationality, with one death and one patient moribund, and the loss of contact with two others suffering from apparently the same disease justifies the presentation of this brief résumé and report.

*Coccidioidal granuloma* has been proven from a study of the cases reported, to be a disease peculiar to the San Joaquin Valley in California, occurring in residents or in persons who have been residents. The disease is infrequent. I have lived in Dinuba, San Joaquin County, for the past fifteen years; the case reported is the first to come under my observation.

**Definition.**—*Coccidioidal granuloma* may be defined as an infrequent subacute or chronic infectious disease caused by a specific mould fungus, *Coccidioides immitis*. It is characterized clinically

by cough, expectoration (frothy in character), elevation of temperature, acceleration of pulse rate, emaciation, weakness, and finally death; locally by glandular enlargements, and areas of edematous, reddened, scattered masses over the body, which either break down or exude a substance like ground liver mixed with purulent fluid when incised.

**History.**—This rare disease was first described by Wernicke of Buenos Aires in 1892. The second case reported, the first recognized in America, was reported by Rixford and Gilcrist in 1896. Many interesting and valuable observations, studies and investigations have been made since the report of the first case, among which might be mentioned the studies of Ophüls,<sup>1</sup> Philip King Brown,<sup>2</sup> Cummins,<sup>3</sup> and Rixford of San Francisco and the serological work of Hirsch<sup>4</sup> and Benson of New York, and the roentgen studies of Taylor<sup>5</sup> of Los Angeles. The literature contains many interesting papers on this disease.

**Geographic Distribution.**—As previously stated, a review of the literature brings out the fact that the majority of the reported cases occurred in the San Joaquin Valley in California or in persons who had resided in this valley.

**Etiology.**—The disease is caused by a specific mould fungus named by Rixford, *Coccidioides immitis*. It belongs to the class *Ascomycetes*. It is a spheroidal double encapsulated body measuring from 20 to 40 microns in diameter, contains spores, and in aërobic culture a separate mycelium is produced. The habitat is unknown; it is supposed to be taken into the body through the respiratory tract by inhalation.

**Morbid Anatomy.**—The pathology of the disease in the internal organs closely resembles tuberculosis, while the external lesions resemble blastomycotic infection. The disease seems to begin in the respiratory tract, and is spread by the blood and lymphatic system. The bones, lymphatic glands, skin and soft tissue become involved before death.

**Symptoms.**—The disease presents itself as an ordinary cold or bronchitis, which may clear up temporarily. There seems to be a lull in the respiratory symptoms after about three weeks. The temperature is irregular and ranges from 99 to 101 or 102. The lymphatic glands enlarge, especially those in the cervical region; break down, and leave permanent sinuses. Soon various enlargements occur on the surface of the body like fair-sized furuncles, which are painful. Relief is obtained after drainage is established. These localized infections involve the bone and soft tissue. The patient becomes asthenic, emaciated, and later dies.

**Diagnosis.**—Race seems to play no part in this disease although the cases that I have seen are all in the Filipino race. Sex: the ratio is about twenty males to one female. Age: most of the cases occur in early or middle life although Reisman reported a case in a patient five years of age. The diagnosis may be established upon finding the causative mould. The absence of the



tubercle bacillus differentiates coccidioides from tuberculosis.

**Prognosis.**—The only hope for cure is in early recognition and amputation where possible.

**Treatment.**—There is no known medical treatment. I thought I had some benefit from the intravenous administration of 20 cc. of a 2 per cent mercurochrome solution.

#### REPORT OF CASES

**CASE 1.**—My first contact with this disease began November 26, 1927. I was summoned to the Dinuba Hospital to attend a sick Filipino boy, who said he had been ill about four weeks and was getting worse.

**History.**—J. R. Sex: male. Age: 23 years. Occupation: laborer doing farm and cannery work. Residence: San Joaquin and Sacramento valleys in California for three years. Birthplace: Philippine Islands, where he lived until he came to the United States. Family history: mother dead, cause unknown; father well and working on his farm in the islands. Personal history: had some of the diseases of childhood, denied venereal infection. Present illness: about four weeks previous he began to cough and expectorate; he had taken many drugs and asked the aid of several physicians, with no relief.

**Examination.**—Male, 5 feet tall; weight, about 115 pounds; cheeks pinched; conjunctiva red and infected; tongue coated and breath very bad odor; pulse, 105, temperature, 101. Lungs, impaired resonance in both apices, with scattered moist râles throughout. Heart, normal. Abdomen, normal. Urine, normal. Stools normal to be negative. Blood examination for Wassermann, negative. Sputum examined for tuberculosis, negative. Blood: red cells, 4,240,000; hemoglobin, 45 per cent; total white, 15,000. The only localized lesion at the first examination was an enlarged gland over the middle of the right clavicle which was red, edematous and very painful.

**Treatment.**—Rest in bed, the bowels regulated and diet given of milk, eggs, and plenty of fluids. On November 28, 1927, the gland was opened under local anesthesia, drained and packed. The typical characteristic fluid was present. The wound was dressed daily and irrigated with metaphen and packed with iodoform gauze. The swelling diminished, but the sinus remained and continued to drain. On December 4, 1927, the patient was afebrile several days following an intravenous administration of 2 per cent mercurochrome solution, 20 cc. On December 8, the large toe on the left foot swelled and was very painful; this swelling was opened and the same treatment repeated as in the gland.

On December 16, in the region of the upper extremity of the right ulna on the dorsal aspect a swelling occurred and was opened with the same result as in the others. On December 20, in the region of the upper extremity of the left tibia a painful enlargement occurred. Like the others, it was opened and treated. On December 30, a swollen area over the left sacro-iliac was incised and a large quantity of pus obtained.

The patient from this date and to the 25th of January, when he was removed to the Sacramento County Hospital, continued to get worse. His emaciation increased; he became more asthenic, and despondent. All of the incised wounds continued to drain. We tried various medications, iodids, mercury, mercurochrome and salvarsan with no improvement. The local treatment consisted of daily irrigations of salt solution, metaphen, silver nitrate, and bichlorid of mercury. After tuberculosis was excluded, syphilis was eliminated. When I decided that the case might be some tropical disease, I asked the California State Board of Health for assistance. Doctor Halliday, who was sent by the State Board, first saw the patient on January 15, and made a provisional diagnosis of coccidioidal granuloma. Laboratory examination confirmed the diagnosis. This portion was from Doctor Halliday's report.

The following is made from Doctor Halliday's<sup>6</sup> laboratory investigation:

Cultures from the contents of the lesions grew rapidly on plain and blood agar and in broths, as typical moulds. Stained slides showed hyphae with chlamdospores and mycelial threads. The blood cultures taken on January 5 in glucose broth showed globoid bodies or yeast-like forms on January 20. Transplants made on plain agar and in broth showed no growth in two weeks' incubation. Swabs were made by Doctor Walters on January 23 from broken down bone lesions: direct smears were negative, but the cultures in plain agar and in broth produced a typical mould like a growth contaminated with *Staphylococcus aureus*.

On February 7, at the Sacramento County Hospital, the sinus on the dorsal surface of the left hand was aspirated and 4 cc. of a thick bloody pus removed. Examinations of wet smears of this pus showed the presence of typical double contoured capsules of *Coccidioides immitis* containing spores. Some of the capsules were broken and endospores freed. Cultures were made on February 9 on cystine agar, hormone agar, hormone broth, and plain agar, and when examined on February 14 showed mould-like growth similar to the other cultures, but the cystine and hormone agar gave a much more luxuriant growth than the plain agar. A second blood culture was made on February 14 by Doctor Barrette of the Sacramento County Hospital; subcultures have been made, but it is too soon to make an examination at the time of this writing.

**X-Ray Examination.**—X-ray pictures taken on January 25 at the Sacramento County Hospital show the findings here noted. Chest: there is a mass projecting upward toward the right from the superior mediastinum. The diaphragm line at the right base is obliterated and there is considerable grayness in the region due to infiltration in the lung; the left lung is negative. Heart is normal; liver and spleen are normal. There is an erosion of the iliac side of the upper end of the left sacro-iliac joint. An area of destruction of the distal end of the shaft of the right fifth metacarpal bone is associated with considerable periosteal reaction. The lesion of the distal end of the second metacarpal bone and the fourth left metacarpal bone are associated with marked periosteal reaction. An area of erosion is present on the cancellous portion of the lower end of the left radius about 1½ cm.; the lesion is accompanied by periosteal proliferation.

**CASE 2.**—On December 4, 1927, I saw my second case. Filipino, male, 24 years old, laborer. Owing to inability of the patient to speak English I was unable to get a history. He presented himself to me at my office complaining of a sore on the left side of his neck; this had been incised by a physician in Bakersfield. He had a cough, was expectorating, and there was a mass about three inches long and two inches wide bulging, with two sinuses discharging the same material as in the case reported. This patient did not return to the office.

**CASE 3.**—On February 11, 1928, I feel sure I saw another patient with this disease. Filipino, male, 45 years old, laborer. Had a swelling on the dorsum of the right hand. I opened it and obtained the same material as in the case report. He was coughing and, like Case No. 2, failed to return for further treatment or observation.

I wish to take this opportunity to thank the State Board of Health and Dr. C. H. Halliday for their courteous coöperation.

Dinuba.

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# BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

## URINARY RETENTION—CATHETER LIFE VERSUS OPERATION

**Miley B. Wesson, San Francisco.**—Every sufferer from urinary retention is entitled to an operation to relieve his obstruction, providing his general condition will warrant it; the age of the patient and the length of time for preparation are of secondary consideration. However, no patient should be subjected to the risk of an operation unless there is more than a 50 per cent chance of a good result. If he has only a choice of spending his last days in a hospital as a postoperative patient or living a fairly comfortable catheter life at home, all will agree that the latter is preferable.

Indications for prostatectomies are fairly well standardized, and any competent surgeon can do a suprapubic prostatectomy. The mortality depends upon the pre- and postoperative treatment, and this fact is not known to all, as indicated by the technically perfect operations that are followed by deaths from uremia and hypostatic pneumonia.

It has only been a comparatively few years since all old men with benign prostatic hypertrophies were condemned to a catheter life. A more or less careful study of statistics has resulted in the general acceptance of the theory that two years is the average extent of a catheter life because of the secondary renal infection. However, there are spectacular exceptions; the first catheter case that I ever saw was an old man of seventy who lived in the Ozark Mountains of Missouri. His catheters were hung in the sun on the back of the woodshed, for it was there that he used them. His technique was simple, but vicious. When he wanted to empty his bladder he merely took his catheter down from the nail on the woodshed, spit on the end of it and then inserted it. Occasionally he dropped the catheter on the urine-soaked ground, but that did not bother him unless it became muddy. The family doctor's technique was practically the same except that, in place of using saliva as a lubricant, he used the vaselin jar from the family medicine chest. Instead of promptly succumbing to a renal infection, the old gentleman lived an active life until the age of eighty-one, when he died of pneumonia.

Catheterization is dangerous in patients who have large uninfected residuals of urine, as infection always follows and too often prompt exitus from pyonephrosis. Catheterization is also dangerous in cases of retention of spinal cord origin whether due to trauma, syphilis, or other nervous lesions. It is hard to convince some doctors that broken-back cases should never be catheterized since paradoxical incontinence develops within twenty-four to sixty hours, without any untoward

effects. Such cases do not die from the broken back, but from the renal infection secondary to the catheterization.

All cases of retention with symptoms due directly or indirectly to bladder-neck obstruction, that cannot be converted into good operative risks because of pulmonary or cardiac lesions, etc., should be placed upon a catheter routine. A not uncommon problem is the man suffering from a complete retention due to a median bar and complicated by a large vesical diverticulum and an aortic aneurysm, or similar constitutional complaint. He can weather a Punch operation and resume voiding, but cannot stand the diverticulectomy, which would relieve him from all urinary disturbances. Hence his urinary frequency will persist and in order to insure unbroken sleep he may have to be catheterized each night.

No patient should ever be catheterized unless there is a definite indication for it, and routine catheterizations are criminal in cases that can be successfully relieved by operation.

\* \* \*

**Franklin Farman, Los Angeles.**—The relief of chronic urinary retention by catheter should be reserved for the extremely "poor risk" patient and for the inoperable case of cancer of the prostate.

The extremely "poor risk" patient is one in whom the expectancy of life is limited to months instead of years. Mathematically speaking, a "poor risk" is one in whom the phenolsulphone-phthalein output remains repeatedly under 10 per cent, with a corresponding sustained increase in the nonprotein nitrogen of the blood to 80 mg. or more. Likewise a continuous low specific gravity of the urine, around 1.010, indicates grave renal impairment.

Catheter life in inoperable cases of cancer of the prostate gives relief and comfort, and may be continued indefinitely until the "growing cancer" has blocked the urethra, then cystostomy is indicated. Any case with metastasis certainly is inoperable.

Operation for prostatic enlargement carries with it a mortality of around 5 per cent, and in selected groups of cases the mortality should not be more than 1 or 2 per cent. There is no operation in men of advanced age that restores health more satisfactorily than prostatectomy. This is due to the permanent relief of urinary retention, detoxication of the entire system, restoration of the function of urine secretion and elimination, lowering of the cardiovascular tension, and increase in the vital or nerve force.

In view of the low mortality and of the permanent good results of prostatectomy, almost



every case of chronic urinary retention caused by prostatic obstruction should be entitled to surgical relief unless definitely contraindicated after proper clinical and laboratory study. Fewer "old men" would resort to a hopeless "catheter life" if their medical advisors thoroughly understood the present-day safe operation of prostatectomy.

\* \* \*

**Robert V. Day, Los Angeles.**—Doctor Wesson has brought an important subject to our attention. He has covered the subject thoroughly and has left little to add. I wish to stress, however, the importance of, and the great benefit derived from, the instillation of a nonirritating silver compound, namely, a 5 per cent solution of argyrol. Wherever there is stasis in the urinary tract the presence of a nonirritating silver salt prevents, or at least tends to minimize, the chemical trauma from ammonium carbonate formed in the urine as a result of stasis and infection. This can be further enhanced by the instillation of an amount of light mineral oil somewhat greater in quantity than the amount of residual urine present in a given patient. The oil floats on top and, as a consequence, the residual will consist almost entirely of oil which cannot decompose as does urine. A small amount (one per cent) of eucalyptol added to the mineral oil tends further to keep the urine reasonably clear. This does not prevent, however, a progressive change in the kidneys and bladder wall, due to the continued back pressure from obstructions.

\* \* \*

**Albert Manson Meads, Oakland.**—Starting with the axiom that no prostatectomy should be an emergency operation (except in cases of severe hemorrhage), we have classified all cases of hypertrophy of the prostate gland into three groups:

1. Those that are, at the first examination, definitely operable.
2. Those that are questionable.
3. Those that are definitely inoperable.

In order to avoid, as far as possible, any unpleasant surprises all three groups are subjected to close study over a definite period of time. Even Group 1 is put on a catheter probation for a few days, and a recheck of the renal function done under conditions of decompression. Occasionally with this procedure we find that we will have to reclassify some of the candidates for operation. The majority of our cases are found to occupy Group 2. It is out of this group that modern urological methods are reclaiming many who a few years ago were absolutely inoperable because of the insidious damage done to the kidneys over the long period that usually exists from the time that the first symptom is noted by the patient to the time that intelligent treatment is instituted. Careful preparation with the inlying catheter or suprapubic drain usually brings the renal function and the patient's general condition up to within safe operating limits. The patients in Group 2 can then be reclassified as Group 1. In Group 3 are the apparently inoperable cases which, however, demand relief. Not infrequently we find that we have erred in judgment in classi-

fying a patient as inoperable, for a small number of these cases respond in a spectacular way to decompression and proper hygiene.

Doctor Wesson and Doctor Farman have stressed the importance of operation and the excellent results obtained in the majority of cases. I wish to emphasize the fact that there is a definite operative mortality as high as 20 per cent or more where statistics are taken from general hospitals, irrespective of the operator. The better the preparation along all lines the lower the mortality in equally skillful hands.

Unless we can promise a man a reasonable chance of a longer and happier life by operative procedures we do not hesitate to recommend a catheter. It has been our experience that the inlying catheter worn continuously is safer than intermittent catheterization by the patient himself. It has been our routine to change the catheter once every five or seven days, teaching the patient to irrigate himself daily with mild antiseptic solutions. We have several cases at the present time under this treatment who have either refused operation or are inoperable. They rapidly become accustomed to the catheter and are able to pursue their routine with practically no discomfort. With this procedure we feel that we have definitely lengthened the lives of many and relieved them of considerable pain.

The choice of operation often is a matter of consideration. The Punch operation can be used only in a very limited group, often with brilliant results. The suprapubic route is the most popular, and certainly gives an easy approach and a large field to work in, but the perineal approach, as far as our experience is concerned, is easier on the patient and is chosen by us whenever we are in the least doubt as to the ability of the patient to stand operable procedures. With us at least, during the first three days after a perineal operation, the patient's reaction is less severe than in the suprapubic type and the mortality definitely lower.

\* \* \*

**Roger W. Barnes, Los Angeles.**—A decision regarding the method of treatment to be used in any case is reached after consideration of the paramount question, "Which will prolong life the longest with the least discomfort?" Given a case of urinary retention, the first procedure is to make an accurate diagnosis of the cause of the retention. In men over fifty years of age, bladder-neck obstruction, either by contracture, median bar, or new growths of the prostate, is the most common cause of urinary retention. Nevertheless paralysis of the bladder due to a central nerve lesion may be present, either complicating the bladder-neck obstruction or as the sole cause of the urinary retention. In such a case surgery is out of the question, and the patient is put on a catheter life if there is discomfort from the retention or urinary infection, or left alone if there is no discomfort or infection.

There are causes of urinary retention such as urethral stricture, acute prostatitis, stone in urethra or sphincteric spasm in which the question



of catheter life versus operation does not enter, but as any of these conditions might be present in men of prostatic age, they must be considered when dealing with a case of urinary retention at this age.

The operative procedures for relief of urinary retention are, with but one or two exceptions, limited to cases of obstruction at the bladder neck and are of two kinds, palliative and curative. The former consists of a permanent suprapubic cystostomy, and is indicated in cases which are difficult or impossible to catheterize or are in constant distress from urinary frequency or dysuria; which are physically unfit to weather a curative operation; and those in which a far advanced prostatic malignancy is present. Curative surgery is the complete removal of the bladder-neck obstruction, and consists of the Punch operation for bladder-neck contracture and median bar, or prostatectomy, either suprapubic or perineal. This type of treatment is indicated in all those cases which, by careful preparation and examination, are found to be physically fit to go through such an operation without casualty. As has been emphasized in the preceding discussions, proper pre- and postoperative care is the greatest factor which has decreased the mortality rate of bladder-neck surgery, and without this specialized pre- and postoperative care this type of surgery cannot be done successfully. As has also been emphasized in the preceding discussions, it is possible with present-day laboratory facilities to determine to an accuracy of 95 per cent which case is, and which case is not fit for curative surgery. When these conditions are met, *i. e.*, proper pre- and postoperative treatment, and proper, complete pre-operative examination of the patient, the mortality of bladder-neck surgery for benign conditions is not more than 5 per cent.

After consideration of the above, catheter life is left for the patient who, after careful preparation and examination, is found to be unfit for surgery, and the patient with far advanced malignancy of the prostate who can be catheterized and who is not in constant distress from frequency and dysuria.

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The College of Medical Evangelists of Los Angeles—Its Cosmopolitan Student Body and Its High Standing and Unusual Record.—The College of Medical Evangelists, located in southern California (the work of the first two years at Loma Linda, near Redlands, and that of the last two years at Los Angeles), is unique in many ways.

It is owned and financed by a small evangelical denomination (Seventh Day Adventist) with the express object, as implied in its name, of preparing scientific doctors of medicine to devote unselfishly their lives to bettering the lot of the millions of men and women in non-Christian lands who so sadly need medical care. That this is a most altruistic and laudable purpose will be readily admitted. In fact it is the only school teaching scientific medicine in the United States emphasizing those phases of the life of the Great Physician concerning the healing art.

The graduates of the College of Medical Evangelists are to be found scattered all over the world. They are at work in the vast territories of China, from the borders at Tibet to the Yellow Sea. Numbers of them

who might be living in their homeland in comfort and affluence are burying their lives in the furrow of earth's need in remote districts of the great empire of India. They are to be found dotting the but little known fastnesses of the Dark Continent of Africa, on the utmost borders of civilization, and in this way treading in the footsteps of the great Dr. David Livingston, who so nobly gave his wondrous life for the dusky sons and daughters of that then unexplored land.

It is interesting to note that more students from overseas attend the College of Medical Evangelists than come to any other college of medicine in this country. In the roster of its student body it registers men and women from India, Africa, Australia, New Zealand, China, Japan, and the islands of the seas. The last statistics published by the Council on Medical Education show thirty-nine students from foreign shores at present attending this school, almost double that of its nearest competitor in the United States in this respect, the numbers in all the others being quite insignificant.

In the matter of attendance it is far from being a small institution, having admitted to its freshman class this year 114 students, and having a total enrollment of 372.

There are only approximately twelve medical schools in our country which require the intern year, withholding the degree of Doctor of Medicine until the fifth or intern year has been completed. The College of Medical Evangelists, along with the medical schools of the Universities of California and Stanford, is one of this group of pioneers in this move for better and more thorough training of our doctors.

While the College of Medical Evangelists is not a part of or connected with any great university, it has nevertheless accomplished some quite well worthwhile achievements.

It sends more of its men to take the Triple Qualification Board of Scotland, which admits those holding its certificate to practice anywhere within the confines of the British Empire than any other medical college in the United States.

It is the pioneer and only medical college in the United States that has adopted and successfully carried forward what is known as the "co-operative plan of education," made famous by the School of Engineering of the University of Cincinnati and Antioch College, Ohio. In a way this plan is a revival of the old "preceptor method" of medical teaching concerning which so much has been said and written of late. The students, during their freshman and sophomore courses, are in school during practically the entire year. They are divided into two sections of equal size. While one section is pursuing its medical studies in the school the members of the other are obtaining a practical experience in the more humble duties of the healing art in hospitals, dispensaries, clinics, and physicians' offices scattered throughout the state.

Recently one of its graduates took first place on Part II of the National Board of Medical Examiners, and was followed shortly after by another who took second place, while its record on the California State Board has been very creditable.

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University of California College of Dentistry Receives Grant.—The American Society of Orthodontists has made a second grant of \$3000 to the University of California College of Dentistry for a continuation of the study in the field of orthodontics, begun in October, 1927. The experimental work is being done on monkeys, under Professor John A. Marshall, in the Hooper Foundation for Medical Research and the college of dentistry of the university. The advisory committee includes Professor Karl F. Meyer, director of Hooper Foundation; Dr. Albert E. Ketcham of Denver, Dr. James D. McCoy of Los Angeles, and Dr. Allen H. Suggett of San Francisco. —*Science*.



California and Western Medicine

Owned and Published by the

CALIFORNIA MEDICAL ASSOCIATION

Official Organ of the California, Utah and Nevada Medical Associations

BALBOA BUILDING, 593 MARKET STREET, SAN FRANCISCO

Telephone Douglas 62

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Subscription prices, \$5.00 (\$6.00 for foreign countries); single copies, 50 cents.

Volumes begin with the first of January and the first of July. Subscriptions may commence at any time.

Change of Address.—Request for change of address should give both the old and the new address. No change in any address on the mailing list will be made until such change is requested by county secretaries or by the member concerned.

Advertisements.—The journal is published on the seventh of the month. Advertising copy must be received not later than the 15th of the month preceding issue. Advertising rates will be sent on request.

Responsibility for Statements and Conclusions in Original Articles.—Authors are responsible for all statements, conclusions and methods of presenting their subjects. These may or may not be in harmony with the views of the editorial staff. It is aimed to permit authors to have as wide latitude as the general policy of the journal and the demands on its space may permit. The right to reduce or reject any article is always reserved.

Contributions—Exclusive Publication.—Articles are accepted for publication on condition that they are contributed solely to this journal. California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

of service, but who as donors often receive the least thanks and appreciation.

It is well for us to give whole-hearted support to all sound measures which make for a better race and civilization, but it is also well that in so doing we remind our lay fellow citizens in terms which the latter understand, what is the value of the contributions we make.

\* \* \*

*Services Should be Translated into Terms Understandable by the Laity.*—Sad as it may seem, and distasteful as it is, it remains true that the lay world, in matters of charity, appreciates values most when they are expressed in terms of dollars and cents.

It is interesting to look through the printed reports of medical charities, such as hospitals, dispensaries, and clinics, and to read the names of donors who have given all the way from goodly sums of money down to those who donate a box of jellies or some blankets or kitchen utensils. And to note also that as a rule no mention is made in such a report of the money value of the professional services rendered by members of the attending medical and surgical staffs.

The following question therefore suggests itself:

“Would it not be a wise procedure for all members of the profession who are identified with such medical charities to add to the statistical report of numbers of patients seen and treated, one or two explanatory paragraphs in which the money value of the services so donated would also be indicated?”

\* \* \*

*Professional Service Money Values in One Large County Hospital.*—From our own experience we know that at first thought such a method is somewhat repugnant to one’s finer sensibilities. In a service in one of our large county hospitals (Los Angeles) it took us more than a score of years before we could persuade ourselves to exploit the money figures involved in the services of more than a hundred able colleagues. After much questioning, we were convinced that it was the proper thing to do, and we have been using with sufficient frequency the total of \$500,000 yearly (a conservative and modest estimate of the professional services rendered by the attending staff at the Los Angeles General Hospital) until the mention of this vast donation is almost becoming an irritant in some quarters. But that is precisely what is desired—to make lay fellow citizens appreciate the stupendous generosity of members of the medical profession.

\* \* \*

*Super-Modesty Promotes Indifference, Where Appreciation Should be Shown.*—We live in a day and generation when it is necessary not to boast of one’s good deeds, but when, if we would be decently appreciated and supported it is at least desirable that fellow citizens, both the indigent

EDITORIALS

PROPER PUBLICITY NEEDED FOR SERVICES IN MEDICAL CHARITIES

In late years it has become quite a vogue in some states to promote projects which are designed to reach citizens and start them on the way to better health and long life. A considerable number of such better health promotions and clinics are sponsored by well-meaning individuals with only a limited knowledge of the problems which they are certain they can solve. Occasionally the motivating personalities behind the movements are individuals who, under the cloak of philanthropic or altruistic endeavor cover their own mercenary and self-seeking aims. Both types of exploiters are often enough met with nowadays, to make thinking members of the medical profession somewhat wary when they are approached for co-operation.

\* \* \*

*Preliminary Investigation of Proposed Medical Charities.*—Medical men should investigate such projects. As a matter of fact it is quite proper that physicians should insist that promoters of medical charities give a full explanation of plans and motives, before receiving promise of medical support. It is meet that we should do this because in most of these movements it is the doctors who day in and day out, week after week, and month after month, give not only the major contributions

and nonindigent, should appreciate the services which are so efficiently and generously given to medical charities by members of our profession. It is because we have not made the better class of lay fellows sense the nature and value of our services to the poor that we receive such indifferent support from public opinion, when the very foundations of legitimate standards of practice in the healing art are assailed.

It is gratifying to do good, but it is also wise to be sensible to the extent of making these lay fellow citizens appreciate somewhat of our goodness. To do good and then be assailed by incompetents or faddists and to have little or no support from lay fellows who should take up the cudgels of defense, in sheer decency of appreciation of the profession's altruistic services rendered to the community, is certainly not a creditable state of affairs, nor is it necessary. It will cease when we make our lay fellows of understanding and influence, appreciate what we are doing. They will better sense the good work we do when we talk in their language. There is an old saying that "money talks." That may or may not be true. But it is certainly a fact that long lists of treatments and operations mean little to the laity unless transformed into their money values.

The thought here brought out is presented to colleagues who hold staff memberships in medical charities, for whatever value it may have to them. If there be a better method of approach for securing proper lay understanding, appreciation and coöperation in these important matters, the suggestions will be welcomed.

#### ATHLETES NOT INVARIABLY LONG-LIVED

A very interesting study and analysis has been presented by L. I. Dublin, one of the statisticians of the Metropolitan Life Insurance Company. It deals with the life expectancy of some 4976 college athletes in some ten leading American colleges (Yale, 1059; Harvard, 938; Cornell, 910; Amherst, 453; Dartmouth, 449; Wesleyan, 364; Brown, 342; Massachusetts Agricultural, 194; Tulane, 138; Williams, 129; total 4976).

The sports with which these athletes were identified included: baseball, 1111; crew, 576; football, 1233; track, 1076; two or more sports, 822; minor sports, 158.

\* \* \*

*Special Purpose of the Analysis.*—The special phase of the analysis centered on college men who had graduated in 1905 and earlier, in an effort to approximate the span of life in such persons once middle life had been reached.

Among these 4976 athletes there were 1202 deaths, which was equal to 93.2 per cent of the Medico-Actuarial table. That table represents so-called standard lives from all strata of society as against a selected type of risks which college athletes practically are, because of the presumably

better stock and kindlier economic environments of childhood years.

\* \* \*

*Causative Factors in the Mortality.*—Of the 1202 deaths which occurred in this group of college men, accurate knowledge of the causes of what might be called the premature deaths could be gathered in only 566 cases, but this latter figure represented a fair cross-section of the total mortality involved.

Tuberculosis was the disease most frequently encountered among the younger individuals who were included in this premature mortality. Pneumonia, typhoid and accidents also were frequently encountered in this younger group.

Of the 315 men who died after the age of forty-five, a total of 101, or 32 per cent, died of diseases of the heart, as against a 20 per cent average in carefully selected insured lives from citizens at large. These last are very significant figures.

\* \* \*

*Training Methods May be at Fault.*—This higher mortality suggests that training methods of some decades ago may have been at fault, and that the whole system of athletic training might well undergo a rigid readjustment.

Dublin in his concluding comments calls attention to the fact that we no longer look upon individuals of large frame and build as the most favorable insurance risks. As a matter of fact it seems that very often small and physically undeveloped people have a longer life expectancy than their seemingly more robust brethren. Much along the same line is the proven fact that the female sex has a longer life expectancy than the male sex.

Dublin's monograph is more than interesting, and suggests further lines of investigation that should be of value, not only to future college men who go in for athletics, but for young men in all stations in life who take up athletics in order to promote the development of sound bodies.

Presumably something more than extra physical exercise at one period of life is necessary as a firm foundation for long life expectancy. At any rate the supervision and skill which are required to properly train young men for athletic and associated purposes evidently demand a high degree of knowledge and good judgment.

\* \* \*

*A Current Example of the Above.*—After the above had been written and gone to press, an item was printed in Brisbane's column on August 21, which is so apropos and so excellent an example to the conclusions reached in Dublin's article, that it is here reproduced:

"William F. Donovan, known to five generations of Harvard men as 'Pooch' Donovan, is dead of heart disease, only sixty-three years old. Donovan liked to show fast young sprinters that



he could beat them and to show football players how they should do their work.

He is dead too early, and overdoing athletics is responsible. Don't strain your heart; you can't buy new parts."

### MEDICAL RESEARCH AND PREVENTIVE MEDICINE

In this issue of CALIFORNIA AND WESTERN MEDICINE are printed two papers worthy of special comment in that they present the viewpoint of men whose work gives them exceptional opportunities for broad outlook in their respective fields. The one paper is by Dr. K. F. Meyer, director of the Hooper Foundation for Medical Research, University of California, and the other is by Dr. Wilfred H. Kellogg of the division of preventable diseases, California State Board of Health.

In contrast to the majority of papers which appear in this and other medical journals, the presentations made in their articles deal with medical activities somewhat dissociated from the routine of daily hospital, office or bedside practice.

The titles of their expositions of activities and progress in their special fields do not mean that they discuss philosophical or theoretical medical matters that are far removed from actual practice. On the contrary, the problems which they present to us have so intimate a relation with daily practice, that without our understanding of them and others of similar nature, there would be but little advance in so-called practical medicine.

\* \* \*

*Research in Medicine on the Pacific Coast During 1927-1928.*—Doctor Meyer gives a list of current researches and achievements by investigators connected with Pacific Slope institutions that should make every citizen in these states be proud of the record of work so well done. It will be a revelation and almost a shock to many readers of this journal to note the quantity and quality of this research output that so unceasingly and so modestly is so efficiently carried on by medical and associated colleagues in order that more exact facts may be added to the store of knowledge that gives to medicine so much of its real basis as a science.

\* \* \*

*Major Groups of Research Which are Considered.*—The four divisions under which research is considered by Doctor Meyer show what broad fields of work have been covered by these Pacific Coast investigators. Some of the items will be here noted.

*Group Dealing with the Nature of Parasitic Causes of Disease.*—In the study of leprosy one of the Hooper Foundation students was sent to Hawaii to continue his studies. Tuberculosis was marked for special work on the tubercle bacilli. Undulant or Malta fever has attracted attention in an effort to find means of better combating the serious menace to our dairy and cattle herds brought about by the spread of *Brucella abortus*,

the bacillus responsible for infectious abortion in bovine animals. The protozoan parasites were also discussed.

*Research Into the Nature of the Causes of Other than Infectious Diseases.*—Here vitamins, diets and growth, lactation and vitamins, paralysis and vitamins were considered. The 1927 outbreak of mussel poisoning in the bay region near San Francisco was made the subject of special study. It may be added that upon the results of those investigations the State Board of Health promulgated its rules having to do with the collection and sale of mussel fish.

*Fundamental Investigations Dealing with Biological Phenomena.*—Here studies of hypersensitiveness, anaphylactic shock, overdosage of tuberculin, compensatory hypertrophy, recovery oxidation after muscular exercise and other subjects were discussed.

*Research in the Treatment of Disease.*—The three foregoing divisions of research dealt with knowledge that makes for a broad perspective and vision of practical workaday problems and the researches are therefore of interest to all physicians who would keep themselves abreast of the times.

Doctor Meyer's fourth division deals with treatment factors. Here topics such as buccal infections, bismuth and syphilis, cancer, low protein and liver diets, subcutaneous blood transfusions, salicylates and ephedrin and morphin substitutes were taken up.

\* \* \*

*Thanks of the Profession Due These Research Workers.*—It is not possible to read the digest presented by Doctor Meyer without sensing how much of the good results in the daily practice of physicians depends on these coworkers in laboratories and hospitals. It is to be regretted that the same orientation cannot be brought to lay citizens. If they did there would be far fewer lay disciples and adherents to cultist and pseudophilosophical schools of healing.

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*Problems of Preventive Medicine.*—Dr. Wilfred H. Kellogg of the bacteriological laboratory of the division of infectious diseases of the State Board of Health introduces the subject-matter of his paper with some very interesting historical and philosophical observations which have a bearing on the items later taken up.

He cites yellow and typhoid fevers, cholera and bubonic plague and infantile conditions as examples of disease scourges in which man has or can maintain the position of supremacy if he will but use the facts already proven. The difficulty at times, is to secure adequate lay coöperation in the work.

\* \* \*

*Bubonic and Pneumonic Plague.*—For instance, in 1924 the city of Los Angeles had a serious scare because of a pneumonic plague outbreak in its Mexican quarter. Fortunately one of the initial cases was recognized early (the story of the recognition of the *Bacillus pestis* in one of the first



patients by a laboratory colleague, Dr. Mona Bettin of Los Angeles, is a story all its own, and is reserved for narrative on a future occasion.) At that time the state and the county and city spared neither effort nor money to combat this menace that would have meant a quarantine to Los Angeles and its port.

How different the stage settings, however, once the immediate scare is past! On several previous occasions mention has been made in this journal of the efforts to secure a rat-proofing building ordinance for the city of Los Angeles. After several years' effort, and in spite of an educational campaign among presumably influential elements of the community, the proposed ordinance is still in Council Committee. It is the old story—that once the immediate danger of a scourge having possibilities of death and vast economic loss is seemingly over, then there is not only noncoöperation, but actual opposition to sane preventive measures. Fortunately in this instance, the record of the medical profession is clear, and in the event of a recurrence the blame will rest on the city officials and those civic organizations and agencies which have failed to do their part in educating an appointed building commission and an elected city council into the seriousness of this plague menace.

So that while the bubonic plague may be a disease that is splendidly handled by the Federal and state governments, it must be acknowledged that in municipalities sane preventive measures are not easily adopted. However, the proponents of the rat-proofing building ordinance for the city of Los Angeles, do not intend to let the matter rest, even though the proposed ordinance is opposed by a peculiar political situation that makes success at the immediate moment seemingly out of the question.

\* \* \*

*Examples of Difficult Problems in Disease Prevention.*—The facts presented in the preceding paragraph would suggest that, in California, bubonic plague might be placed in this group of difficult problems. The analogy with the malaria situation in the Sacramento Valley as outlined by Doctor Kellogg is evident.

*What Should be Our Attitude Regarding Smallpox?*—A less good analogy exists as regards smallpox and compulsory vaccination. So much has been written concerning the efficient manner in which vaccination protects from smallpox, that in this day and generation it seems inconceivable that intelligent persons could object thereto. Yet such is the power of pseudophilosophical and cultist groups that it is useless to argue. For himself as an individual, the writer of this column in recent years has revamped his attitude on this question. Formerly he was an ardent adherent of compulsory vaccination. Now he believes this is one of the diseases toward which the medical profession can limit its educational work to dignified presentation of world statistics on the value of vaccination; coupled with statements that the

medical profession believes vaccination to be safe and efficient protection against smallpox, and that all citizens are advised to avail themselves of the procedure. Of course, the clients of physicians should be especially urged to have vaccination done. Then when smallpox comes, physicians, their families and their clients will have protection.

Those who hold that smallpox is a disease existing in the imaginations of physicians will have an opportunity to prove the correctness of their theories. For himself, he believes that after the smallpox epidemics which are certain to occur in California, if the antivaccinationists are victorious (a large nonvaccinated population combined with nonvaccinated Mexicans to bring the disease to them), we shall have a sufficiently large number of nonvaccinated smallpox survivors, whose pock-marked faces on the streets will go far in keeping others from exhibiting similar foolishness in the future.

\* \* \*

Doctor Kellogg's presentation of factors antagonistic to effective disease prevention, of unsolved problems and of future progress in preventive medicine, and of the part which medical men should play in disease prevention is of interest and worthy of earnest thought. Readers of CALIFORNIA AND WESTERN MEDICINE are urged to mark these two articles for perusal.

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#### COUNTY MEDICAL SOCIETY MEETINGS—SCIENTIFIC AND SOCIAL PHASES

Perusal of the reports of county medical societies of the California Medical Association, as they appear in CALIFORNIA AND WESTERN MEDICINE from month to month would indicate that more and more of the component county societies are appreciating how valuable it is to local medical organization and work, when members convene and not only discuss scientific topics, but at the same time break bread one with the other, drop formalities, and welcome and meet one another as brothers, coworkers and colleagues of the same guild. Such a combination of interests is much to be desired, for effective organization work rests not only on loyalty to high professional standards, but also on a solidarity that comes largely through kindly personal regard and coöperation.

It is fair to conclude that when county societies provide meetings in which scientific and fraternal development go constantly hand in hand, that in such communities narrow personal jealousies and misunderstandings will be held down to a minimum, and that the real objects of medical organization in all its phases are more apt to be realized.

\* \* \*

Meetings after this conjoint plan are in one sense easier to carry through in the smaller than in the very large county units. Nevertheless in the smaller societies it costs just as much per member for a simple informal buffet luncheon or supper as it does in the larger units. The handicap in the larger units is that it is difficult for a single



member to contact at every meeting with every-one of his fellow members. That, however, is not the primary object, for we know that our social contacts both in and out of the profession, of necessity radiate from one little group of which we happen to be a part, to contacts with other little groups, the circle of contacts, however, growing constantly larger as time goes on.

\* \* \*

No very effective organization spirit can ever be brought into being in a club or society unless these social amenities are recognized and provided for. For when these social contacts are neglected, the larger the society the more unappealing do the general meetings become to the majority of the members; and as the months and years pass by, in such a large society, in the medical profession, for instance, a goodly number of members become indifferent to the general meetings, remain aloof therefrom, and often, unfortunately, permit themselves to believe that the only persons really interested in the meetings are those fellow members whom they credit with having so-called political or office-holding proclivities. All this is undesirable, because with such a substratum of feeling, no forward organization work, which would radiate and influence lay fellow citizens, either from the standpoint of public or personal practice, is apt to come into operation and realization.

\* \* \*

Officers of county medical societies have important responsibilities in all this, because it is they who have been given the honor of official positions, and with the honors go responsibilities. The fundamental responsibility is to bring each component society up to a 100 per cent efficiency in its county and state activities.

County society officers who have had only limited experience in nonmedical clubs or in medical organizations should aim to follow in the paths along which in the past it has been shown most progress could be made. It is really a fairly simple proposition, this matter of providing: one, a scientific program made up of contributions by leaders among local colleagues, plus addresses from time to time by colleagues from other societies, as can be easily arranged through the office of the secretary of the California Medical Association; and two, of adding to the intellectual program those social features which play so large a part in bringing out a larger attendance at meetings, and which make for a stronger *esprit de corps* through the good fellowship that holds the members together as they chat and eat at the conclusion of the scientific program.

\* \* \*

There is no county society that cannot well consider the inauguration of these procedures. It has been gratifying to note that the San Francisco County Society has again taken up the supper plan. Years ago the Los Angeles County Society built up a very considerable reputation of unity, based in good part on its after-meeting suppers. No matter how great the superficial difficulties may seem as regards the inauguration of these

social activities, it will be found in practically every instance that ways and means always can be found through which they can be brought into being. It is an active coöperative membership that spells real organization efficiency, and no effort should be too great for officers and members to attain the same.

## RETURNS FROM PROPOSED INITIATIVES

The proposed initiatives—the full text of which was published in the August issue—failed to secure the necessary signatures for a place on the ballot. Instead of the required 91,529 signatures to the initiative on health boards and nonmedical practitioners in public hospitals, but 3620 actually were secured.

It is to be hoped that this tremendous lack of support to vicious legislation is indicative of a growing unwillingness on the part of voters to affix their signatures to petitions which are presented on the street corners and in hotel lobbies. Thoughtful voters evidently realize that initiatives are not easily repealed; that the true motive in a bill is frequently skillfully concealed in a minor clause, and that the title of a proposed initiative may easily be at total variance with the real purpose of the measure.

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Old Chinese Works Reveal Drug Lore.—Chinese physicians of five thousand years ago knew the uses and physical reactions of numerous drugs of which the physicians of the western world are only now learning, according to the findings during the course of the translations of Chinese medical works by Michael J. Hagerty, translator for the United States Department of Agriculture.

"Ma Huang," known to western scientists as ephedrin sulphate, a recently developed preparation for the treatment of bronchial asthma, hay fever and rhinitis, has been used in China for more than five thousand years, and is first mentioned, Hagerty has found, in the ancient materia medica of Emperor Shen Hung, who reigned from 2737 to 2698 B. C.

In the course of Hagerty's translations, its use as a cure for colds is most commonly cited. Other uses for "ma huang" were in treating or curing diseases of the "five internal organs," which to the Chinese physician of early days were the kidneys, spleen, liver, heart, and lungs; to cure diseased armpits and breasts, to stop "the desire to vomit," or to induce or prevent perspiration—different parts of the plant being used for the purpose in the last case.

Colds were broken up by its use in a broth. An ancient prescription translated by Hagerty recommends its use "in the epidemic of fever due to change in weather, just as it arises on the first or second day."

The prescription, compiled during the T'ang dynasty, or between 618 and 905 A. D., advises the patient to "take one large ounce of ma huang, remove the joints; take four pints of water, boil together and remove the top scum; boil down to two pints and remove the dregs; take one spoonful of rice and beans and make a gruel. Before using the broth take a warm bath and afterward eat the gruel, put on a thick bed covering and when the perspiration comes forth there will be a cure."

Ephedrin, the active principle of ma huang, was first isolated in impure form in 1885, but it had not been dealt with completely in the Occident until 1924, and its uses are now becoming generally known. The Department of Agriculture is making a thorough study of the drug with a view toward encouraging its cultivation. It is known to grow wild in sections of California and Nevada.—*U. C. Clip Sheet.*

# MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

## Urology

**Vesical Symptoms.**—Bladder symptoms are frequently caused by pathology in surrounding organs. A patient may complain of urgency and frequency of urination, and a complete urological examination reveal nothing; but if the rectum, uterus or other adjacent organs were examined, a pathological condition might be found, which if corrected would clear up the bladder symptoms.

All of the pelvic organs are united in one great nerve plexus and an irritation arising from one source may be reflected in such manner as to appear to originate in another. Anal fissure and hemorrhoids are the most common condition to cause reflex bladder symptoms,<sup>1</sup> that range from complete retention to a urinary incontinence, or from a slight frequency or urgency, to severe bladder spasm. Even a small anal fissure will cause urinary retention by reflex irritation of the vesical sphincter; and catheterization is a common occurrence following a hemorrhoidectomy. Gynecological disease may also cause bladder symptoms by reflex nervous action, but these symptoms are more commonly due to the close proximity of the diseased pelvic organs. Inflammation may extend through the bladder wall, causing cystitis with its resulting symptoms, or an infection may travel from a vaginitis, through the urethra into the bladder.<sup>2</sup> The pressure of enlarged or misplaced pelvic organs on the bladder is a frequent cause of vesical irritability. The invagination of a portion of the fundus of the bladder from pressure of an antiflexed uterus is frequently seen through the cystoscope. This condition increases intravesical pressure, and produces an urgency of urination, which is more pronounced during the day, being relieved at night when the patient is off her feet. The same symptom will be produced by pressure from a uterus enlarged by pregnancy, subinvolution, fibroids or other tumor growths. Carcinoma of the uterus or of the rectum also causes bladder symptoms by pressure on the bladder, or by direct extension of the inflammation from the tumor mass.<sup>3</sup> This inflammation may be so intensive as to cause ulceration of the bladder mucosa which sometimes progresses into fistula formation.

A careful history of the patient suffering from bladder distress will sometimes reveal that the onset of her symptoms followed a gynecological operation. Injury to the bladder and ureters during such an operation, or radium burns of the bladder following application of radium to the

cervix or uterus are factors in the production of these symptoms;<sup>4</sup> or the onset of the symptoms may follow parturition, at which time injury to the bladder or urethra occurs, forming a cystocele with residual urine,<sup>2</sup> and producing symptoms similar to those due to prostatic hypertrophy in the male; or causing a urethral stricture with its resulting bladder symptoms.

The colon is also a producer of genito-urinary symptoms.<sup>5</sup> The causation and persistence of chronic pyelitis from intestinal stasis is common knowledge, and changing the intestinal flora and increasing elimination from the bowel is routine treatment for this type of kidney infection. A chronically inflamed appendix may cause bladder symptoms by reason of direct extension of the inflammation to the bladder, or may produce ureteral stricture by extension of scar tissue to that organ, or ureteral kink from adhesions.

An attempt to name every condition in surrounding organs which causes genito-urinary symptoms, or to enumerate all of the symptoms, has not been made. However, the frequency of occurrence of this phenomenon must be kept in mind when a case presenting obscure genito-urinary symptoms is being examined, so that the examination will eliminate every pathological condition of surrounding organs which may be causative of these symptoms.

ROGER W. BARNES, Los Angeles.

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## General Medicine

**Comments on the Most Important Type of Benign Glycosuria—The So-Called Renal Glycosuria, and the Renal Threshold.**—It is now fairly well recognized by most physicians that all glycosurias are not of true pancreatic origin, in other words, the presence of urinary glucose in many instances does not depend upon



impairment of the internal secretion of the pancreas as is the case in diabetes mellitus. It is over thirty years since Klemperer called attention to an interesting familial condition which he called "renal diabetes," but which is now usually referred to as "renal glycosuria." Although there are several other well-recognized types of benign glycosuria,<sup>1</sup> I feel that the so-called renal glycosuria is by all odds the most important clinical glycosuria to be differentiated from true pancreatic diabetes. This differentiation is, unfortunately, often attended with difficulty even when a most careful investigation can be made, but it should, I am convinced, always be attempted.

Knud Faber, the Copenhagen internist, has been interested for some years in the metabolic problems related to this subject, and it is my intention to present briefly a résumé of his views on the benign glycosurias, with particular reference to renal glycosuria.<sup>2</sup>

The study of the organism's regulating mechanisms forms one of the most fundamental fields in physiologic research. In 1913 Jacobsen<sup>3</sup> established what is known as the renal threshold for sugar, *i. e.*, the degree of concentration of sugar in the blood necessary before sugar will appear in the urine. In normal individuals he found that this varied between .16 to .18 per cent of blood sugar. The blood-sugar level of all individuals varies throughout the twenty-four hours, depending on the amount of sugar and starch ingested. When the alimentary hyperglycemia rises above the renal threshold for sugar, glycosuria sets in. The rise in the hyperglycemia, however, by no means corresponds to the quantity of carbohydrate ingested. Under normal conditions there is an acceleration capacity of the organism for the removal of sugar from the blood, so that glycosuria does not follow the ingestion of even large amounts of carbohydrate. Thus the blood-sugar value is kept at a suitable level by means of two different mechanisms, namely, the renal threshold, and the acceleration of the blood-sugar removal by the organism.

In morbid disturbance of the blood-sugar regulation, glycosuria occurs. The classical example of this is, of course, diabetes mellitus, which is due to impairment and reduction of the incretory secretion of the pancreas. In this disease the organism has lost the power to remove sugar from the blood when it exceeds the usual level.

On the other hand, as mentioned above, in the absence of pancreatic diabetes, glycosuria occurs in normal individuals through two mechanisms, either because of a low threshold for sugar, or because the blood sugar, after the ingestion of carbohydrate, may rise above the normal. As previously stated, it is now agreed that the normal renal threshold lies between .16 to .18 per cent, or even higher in some instances up to .20 per cent. It is found, however, that certain individuals have inherently a low threshold and a constant overflow of sugar in the urine occurs. In a certain group the threshold is only moderately reduced from the normal, and lies between .12 and .15 per cent. Clinically this represents the cyclic

glycosuria, and is characterized by the recurring presence of urinary sugar following meals, but its absence at other times.

Faber and Norgaard<sup>4</sup> have made important observations with reference to the constancy for single individuals of the renal threshold, which are at variance with the opinions of most American observers. They maintain that the threshold is fixed in both diabetic and nondiabetic individuals. It varies in different subjects, but is constant in the same individual under most all conditions. The one striking exception to this rule is observed during pregnancy, when there may be a temporary depression of the threshold. They conclude "that the low threshold is an individual characteristic, a constitutional abnormal property, and the glycosuria is not a sign of any metabolic disturbance."

The second important mechanism underlying renal glycosuria is found in the disturbance in the removal of blood sugar in alimentary hyperglycemia. In the absence of true diabetes, this manifests itself by the blood sugar rising higher than normal after the ingestion of carbohydrate. Instead of stopping at about .18 per cent, as is the case usually, the blood-sugar level rises still higher to between .20 to .30 per cent. The same conditions can obtain in mild or early diabetes, but on the other hand there seems to be no doubt that such a recurring glycosuria, which is due exclusively to excessive alimentary rise, is fairly frequent and may be present for years without developing into true pancreatic diabetes. It should be pointed out that this kind of reaction to ingestion of carbohydrate presents at times the most perplexing problem in its differentiation from diabetes. This disturbance in the blood-sugar mechanism does not, however, always appear to remain as constant as a lowered renal threshold. In several cases Holst ascertained that the high alimentary rise subsequently disappeared.

To summarize then, it is seen that two essentially different forms of glycosuria exist. The first is true pancreatic disease, with impairment in the incretory function, which resides in the islands of Langerhans, and this is the morbid condition of diabetes mellitus. The second form of glycosuria is due to a deficient blood-sugar regulation, which may either act through an habitually low renal threshold, or an habitually high alimentary blood-sugar rise. On account of the extensive occurrence of nondiabetic glycosuria and the obvious difference in both prognosis and treatment from pancreatic diabetes, the correct interpretation is of the very greatest importance to the patient.

The practical significance of the knowledge of the benign glycosuria cannot be overestimated. The chief difficulty arises when a glycosuria is detected without symptoms of diabetes. In such cases it is necessary to make blood-sugar determinations. The matter to be ascertained is whether or not there is a hyperglycemia present when the patient is fasting. It is of great importance for this investigation that no dietetic treatment be begun before making this determination, other-

wise there is a great possibility of erroneous conclusions because an existing hyperglycemia may disappear. As a supplementary investigation the determination of the type of glycosuria may be carried out by determining the blood-sugar curve after the administration of a dose of glucose. American observers have emphasized the importance of the failure of the blood-sugar value to return to the normal level of about .12 per cent in the two-hour period following ingestion of 100 gm. of dextrose. This delay is seen regularly in disturbance of the carbohydrate utilization of the true diabetic type.

In the past decade, since the refinement of methods for the accurate clinical determination of the blood sugar in glycosuric patients, the idea concerning the prevalence of renal glycosuria has been considerably modified. Ten years ago it was regarded as a comparatively rare condition, but opinion has changed, and today it is known to be fairly common. In confirmation of this, J. E. Holst,<sup>4</sup> in an examination of 163 applicants, who by life insurance companies were declared to be diabetics on account of glycosuria, was able to demonstrate the frequency of the benign type of glycosuria. In only 30 per cent was true diabetes the underlying cause of sugar. In a series of twenty-seven cases of benign glycosuria, which he observed for from one to twenty-five years, no sign of the development of diabetes was observed in a single instance. The importance of these facts to life insurance companies is obvious, and has been ably discussed recently by Dr. Francis H. McCrudden of the New England Mutual Life Insurance Company. With reference to medical selection in sugar cases, McCrudden<sup>5 6</sup> concludes as follows: "The doubtful glycosuria cases are given an opportunity to submit to the blood-sugar tolerance test. In this test 100 grams of dextrose in 40 per cent aqueous solution is administered by mouth, and two hours later the sugar content of the blood is determined. If the blood sugar content at this time is .120 per cent, or less, we consider that the glycogenetic function has demonstrated its ability to stand a good load with normal response. If there is no other impairment we accept them for standard insurance."

ERNEST S. DU BRAY, San Francisco.

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Slight Glycosuria, published by the New England Mutual Life Insurance Company, Boston, 1925.

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#### Bacteriology

**A Necrotizing Toxin from Pneumococcus.**—Therapeutic antisera have been generally unsuccessful except in those infections in which a strong microbic toxin can be obtained as the immunizing agent. The recent production of a powerful necrotizing toxin from the pneumococcus by the application of improved technical methods is, therefore, of general interest.

Parker<sup>1</sup> found that if a virulent, first-generation broth culture of pneumococcus is chilled, centrifuged, the sediment taken up in an equal volume of chilled, freshly boiled broth and immediately sealed free from all air bubbles, the sealed tubes give rise to a powerful necrotizing toxin if kept in the dark, at room temperature, for six to eight days. The preparation must be ice-cold when exposed to air, otherwise its toxicity rapidly disappears. Parker found that this toxin can be passed through a Berkefeld filter, if every precaution is taken to have the filter and receptacles at freezing temperature. She reports that 0.1 cc. of the filtrate injected intradermally into a guinea-pig will produce a necrotic area an inch in diameter.

W. H. MANWARING, Stanford University.

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Recovery Chances in Infantile Paralysis.—Definite case history evidence that infantile paralysis may be checked with little or no permanent impairment of patients, providing that treatment by intramuscular injection of convalescent serum is given within forty-eight hours after first symptoms of the disease, has just been collected by Dr. E. B. Shaw and Dr. H. E. Thelander, instructor and voluntary assistant respectively in the department of pediatrics of the University of California Medical School.

The points which they list in concluding the report are as follows: Convalescent serum administered intramuscularly is of distinct value in the treatment of poliomyelitis. The effectiveness of such treatment depends on early diagnosis and treatment, with sufficiently large, and if necessary, repeated doses of potent serum. The method, on account of its ease, safety and simplicity, may be applied in the doubtful case without waiting for confirmatory evidence, and is particularly apt to provide treatment in the early stages when much may be expected as a result of treatment. It is extremely desirable that stores of pooled convalescent serum be made available for general use and particularly that such stores be on hand prior to the outbreaks of actual epidemics.—*U. C. Clip Sheet.*



# STATE MEDICAL ASSOCIATIONS

## CALIFORNIA MEDICAL ASSOCIATION

WILLIAM H. KIGER.....President  
MORTON R. GIBBONS.....President-Elect  
EDWARD M. PALLETTE.....Vice-President  
EMMA W. POPE.....Secretary

### OFFICIAL NOTICES

**Council Meeting.**—The next meeting of the Council will be held at the Los Angeles Biltmore, October 6, 1928.

**Clinical and Research Prize Papers.**—That research work is extensively carried on on the Pacific Coast is conclusively shown by Dr. Karl Meyer's article in this issue. There should, therefore, be no dearth of material for research prize papers in 1929.

Those members who desire to submit the results of such research work to the Prize Committee will find appended the rules which govern the competition. Papers dealing with clinical subjects are entered in the same manner.

The committee in charge are George Dock, chairman; Emmet Rixford and Eugene S. Kilgore. The committee has asked that more publicity be given this competition to the end that greater interest may be stimulated and that more and better manuscripts shall be entered. *Entering of papers in the Prize competition does not debar the author from a place on the annual program.* In such case the completed paper must be in the state office before *December 20, 1928.*

"Send two copies of the completed paper to the state secretary, Dr. Emma W. Pope, 1016 Balboa Building, San Francisco, before December 20, 1928, with an unsigned note that you wish your essay submitted for a prize and also read at the annual session. Sign your paper with a nom de plume. Also send your name in a sealed envelope with the nom de plume appearing on the outside. Use no stationery that in any way reveals your identity."

Any member who desires fuller instruction regarding this contest may secure the same by writing to the state office.

### GENERAL RULES GOVERNING PAPERS

The Committee of Clinical Prize Awards desires to call the attention of the membership to the following rules governing the submission of papers, for the benefit of those who desire to compete for the 1929 prizes:

1. Any member of the California Medical Association is eligible to compete for the prizes. Any question arising as to the eligibility of a candidate or the admissibility of his essay will be settled by the decision of the Council.

2. Manuscripts must be typewritten on one side of the paper; they must be double spaced; and they must not be folded or rolled. Illustrations or charts must be marked on the reverse side with the title of the paper to which they belong.

3. Essays must not contain more than four thousand words. In judging a paper the committee will take into account the basic importance of the work done and its novelty; the thoroughness with which the research has been carried out; the clearness with which it has been written; and the neatness of the manuscripts and illustrations.

4. Papers should be sent, preferably by registered mail, to Dr. Emma Pope, secretary of the California Medical Association, 1016 Balboa Building, San Fran-

cisco. They should be identified by a nom de plume or motto only. A separate envelope should be sent to Doctor Pope containing the author's name and his nom de plume or motto, so that after the award is made the name of the writer can be found. Any return addresses or distinguishing marks will be removed from the wrappers before the papers are turned over to the judges.

5. All papers must be in the hands of Doctor Pope before February 15, 1929, in order that the judges may finish their work in time for the meeting of the Association.

6. The judges reserve the right to withhold the award, in the event that no paper comes up to the standards of excellence they feel should obtain.

7. If, in the judgment of the editors of CALIFORNIA AND WESTERN MEDICINE, and the editorial councilors, the paper on laboratory research is too technical or otherwise unsuitable for inclusion in CALIFORNIA AND WESTERN MEDICINE the prize winner will be allowed to publish it in some special journal and will be required to make an abstract for the readers in California.

8. Inquiries relative to the prize contest should be addressed to the chairman of the committee, George Dock, M. D., Chamber of Commerce Building, Pasadena, California.

**Extension Lecture Service.**—With the termination of the vacation season, county medical societies renew their usual meetings and also their calls upon the state office for speakers at their monthly gatherings. So it comes about that the yearly extension lecturers are asked to revise their programs and to be prepared to furnish talks other than those previously listed.

An invitation is also yearly extended through these columns for volunteers in this work. The service is voluntary; there is no state fund to cover the expenses of travel; it does often take a member away from his work at an inopportune time and yet those who give of their time and service make new contacts that are worth while, learn to address audiences easily, and are forced to rapid thinking and response in the discussion that regularly follows papers. Few members who have been placed upon the extension list have asked to have their names removed. Many have spoken with pleasure of their evenings with county societies.

This is fine organizational work. An active county society is the basis of a healthy state association. Whatever, therefore, calls out the members to a county meeting is an aid to the growth of the California Medical Association.

Will those members who are interested in this work and who have talks that are worth while to the general practitioner, and who are willing to be called upon occasionally to deliver these addresses to county societies, furnish their names and the subjects of their talks to the state office before the 20th of September.

### COUNCIL MINUTES

Minutes of the One Hundred and Seventy-Third  
Meeting of the Council of the California  
Medical Association

*Approved at the One Hundred and Seventy-Sixth  
Meeting of the Council*

Held in the English Room of the Palace Hotel, San Francisco, California, Saturday, March 24, 1928, at 10 a. m.

**Present.**—Doctors Phillips, Kiger, Kelly, Gibbons, Hamlin, Kinney, Duffield, Coffey, Harris, Rogers,

Peers, Catton, Kress, Shoemaker, Curtiss, Pope, and General Counsel Peart.

**Absent.**—Doctors Bingaman, DeLappe, and Shephard.

1. **Roll Call.**—The meeting was called to order by the chairman, Morton R. Gibbons.

2. **Minutes of the Council.**—On motion of Kinney, seconded by Rogers, it was

Resolved, That the minutes of the one hundred and seventy-second meeting of the Council, as mailed to each member thereof, be approved.

3. **Length of Annual Meeting.**—Letter from Dr. George H. Kress regarding the number of days consumed at annual meetings was discussed. Doctor Kress stated that formerly the meetings had been held for three days, but of late years four days had been allotted, which necessitated physicians and surgeons being absent from practice six days, and pointed out that activities of the last day were not usually well attended. Members of the Council stated that they believed this matter should be presented to the Program Committee for suggestions.

Action by the Council.—On motion of Catton, seconded by Kress, it was

Resolved, That it is the sense of this Council that the annual session be reduced to three days, but that the Program Committee be advised of the view of the Council and asked for an expression of opinion and that final action be withheld.

4. **Invited Speakers—S. A. Kinnier Wilson.**—The secretary stated that the secretary of the Academy of Medicine, Dr. J. Marion Read, had advised the Program Committee at their Santa Barbara meeting that the Academy was inviting Kinnier Wilson of London, a leading neurologist, to speak before the Academy of Medicine on the Saturday preceding the date of the annual session and had suggested that the Program Committee might be interested in inviting Doctor Wilson to address one of the general sessions and also the Neuropsychiatry Section.

The Program Committee recommended that Doctor Wilson be extended an invitation to address the second general session and the Neuropsychiatry Section.

Action by the Council.—On motion of Kelly, seconded by Peers, it was

Resolved, That the Association invite Kinnier Wilson to address the annual meeting.

5. **Scientific Exhibits.**—Requests for permission to place a scientific exhibit of an x-ray study of sphenoidal sinuses at the Sacramento meeting by Lincoln Kallen was presented by the secretary.

Letter regarding an exhibit of the Langworthy Portable Elevator and Fracture Apparatus was also presented.

It was the sense of the Council that the matter be referred to the Section on Radiology.

6. **Legislative Committee.**—Letter from Harlan Shoemaker requesting that the Legislative Committee be allotted \$100 per month to pursue the necessary legislative investigations of the Medical Practice Act and other legislative questions was read. Doctor Shoemaker outlined the procedure necessary to follow pending legislation.

Action by the Council.—On motion of Shoemaker, seconded by Duffield, it was

Resolved, That the Legislative Committee be allotted \$100 per month for the expenses of the committee.

Doctor Coffey entered an objection to the use of the funds of the Association for such purpose stating that legislative work should be carried on by personal subscription. Method of checking on such fund was then discussed.

It was the sense of the Council that Doctors Shoemaker, Coffey, and Mr. Peart have a conference regarding this question. The resolution was tabled.

7. **Technical Specialties.**—Report of William B. Bowman, chairman of the Technical Specialties Committee, was read. Doctor Bowman pointed out the desirability of cordial contact with members of technical specialties, but stated that in view of the different viewpoint of laymen and the physician, it was the sense of his committee that the California Medical Association should have no official or semi-official relationship with such organization, and that the constitutions and by-laws of such associations wherein such relationship is provided for should be amended.

Action by the Council.—On motion duly made and seconded, it was

Resolved, That the recommendations of the Technical Specialties Committee be adopted.

Doctor Duffield, member of the Technical Specialties Committee, stated that at present the American Medical Association was endeavoring to compile a list of the vast number of technical specialties now existing.

8. **Industrial Medicine.**—Report of Dr. Gayle G. Moseley, chairman of the Industrial Medical Survey Committee, was presented. Doctor Moseley stated that answers were being received from the questionnaire to all county societies on the amount, character and results of industrial medicine, and that a more detailed report would be presented at the annual meeting.

It was the sense of the Council that the report of Doctor Moseley be accepted.

9. **San Joaquin County Society.**—The General Counsel stated that the time and place of hearing appeals of members of the San Joaquin County Medical Society should be fixed.

Action by the Council.—On motion of Kelly, seconded by Hamlin, it was

Resolved, That the Executive Committee be directed to fix the time of hearing of appeals of the members of the San Joaquin County Medical Society at the annual meeting at Sacramento and that the San Joaquin County Society and the individuals appealing be given due notice of such action.

It was decided to discuss the matter further at the afternoon session.

10. **San Francisco County Society.**—Letter from the chairman of the Executive Committee of the San Francisco County Medical Society was read, in which the Association was invited to hold the fall meeting of the Council jointly with the San Francisco County Medical Society. It was pointed out that it would be impractical to hold such a Council meeting and that if the San Francisco County Society desired representatives of the Council to be present, its wish would be complied with upon request.

Action by the Council.—On motion of Hamlin, seconded by Kiger, it was

Resolved, That Doctor Kelly advise the Executive Committee of the San Francisco County Society of the Council's attitude in the matter and that if there are any matters on which advice or discussion is desired, arrangements be made to have a representative of the Council present.

11. **Affiliate Membership.**—The secretary presented request from various county societies requesting that affiliate membership be granted Henry W. Miner, Blue Canyon, Placer County; Harvey W. Strader, Sacramento County; Jennie H. Anderson, San Fran-



cisco County; and B. C. Anderson, Barstow, San Bernardino County.

Action by the Council.—On motion of Peers, seconded by Kiger, it was

Resolved, That Henry W. Miner, Blue Canyon, Placer County; Harvey W. Strader, Sacramento, Sacramento County; Jennie H. Anderson, San Francisco, San Francisco County; and B. C. Anderson, Barstow, San Bernardino County, be granted affiliate membership in the State Association.

**12. Physicians' Home.**—Letter from the American Medical Association regarding the need of a home for indigent physicians was presented. The secretary stated that twenty-eight of the forty-eight counties had replied to the request for information on conditions within their counties and that none reported any provisions for the care of indigent physicians. Three cases of indigent physicians were reported which were being cared for in county hospitals.

It was the sense of the Council that the secretary should forward the data collected to the American Medical Association.

**13. Arrangements Committee.**—Dr. Junius B. Harris, chairman of the Arrangements Committee reported on the progress of plans for the annual meeting and outlined the program for the entertainment of members and guests.

**14. Medical Economics.**—Letter from Dr. George H. Kress regarding collection of bills rendered by physicians and surgeons for medical service was read. After discussion it was decided that it would be inadvisable to take any action in the matter.

**15. Legislative Committee.**—Doctor Shoemaker, chairman of the Legislative Committee, explained incidental expenses to which the committee was put in carrying on its work. It was stated that a statement of the expenditures was filed in the secretary's office.

Action by the Council.—On motion of Duffield, seconded by Kinney, it was

Resolved, That the Legislative Committee be granted \$100 per month for incidental expenses as requested by the chairman in his letter of February 3, 1928.

The resolution passed. Doctor Coffey, who had entered an objection at the time the subject was previously discussed was not present to vote.

Doctor Shoemaker then presented Senate Bill 3107, being an act to regulate the practice of the healing art in the District of Columbia for the protection of the public health, and called the attention of the Council to various suggestions and criticisms on the act by Dr. Charles B. Pinkham which were furnished at the request of the Executive Committee.

Action of the Council.—On motion of Shoemaker, duly seconded, it was

Resolved, That the annotations of Doctor Pinkham be forwarded to the secretary and president of the medical society of the District of Columbia, all Senators and Representatives of California, and to the American Medical Association.

**16. Constitution and By-Laws.**—Dr. William Duffield stated that as there were important matters that should come up before the medical profession at this time and as the Association had a working Constitution at the present time, he would suggest that action on the Constitution be deferred.

Action by the Council.—On motion of Duffield, seconded by Kress, it was

Resolved, That it be the sense of the Council that the matter of Constitution and By-Laws lay over for another year.

Doctor Kress stated that the two forms of proposed constitutions were different in many respects and although a new constitution was desirable, it was not vital at the present time. Doctor Phillips stated that he believed the Council should proceed with consideration of the Constitution and By-Laws at the

present time and that final decision on controversial matters could be made by the House of Delegates.

A vote was then taken on the question of allowing the consideration of the Constitution and By-Laws to go over for another year. Five ayes; seven noes; motion defeated.

Consideration was then taken on the following matters:

The question of larger representation for smaller counties was discussed, and on motion of Harris, seconded by Shoemaker, it was

Resolved, That the matter of larger representation for smaller counties be referred to the House of Delegates without any recommendation by the Council.

Discussion was then had on whether the secretary and editor should be prohibited from engaging in practice while in office. On motion of Hamlin, seconded by Harris, it was

Resolved, That the Council make no recommendation to the House of Delegates on the question of whether the secretary and editor shall be prohibited from engaging in practice while in office.

The question of whether councilors should be elected by the delegates of the district wherein they are to serve or by the entire House of Delegates was brought up, and on motion of Phillips, seconded by Harris, it was

Resolved, That the matter of election of delegates be referred to the House of Delegates without recommendation from the Council.

The question of fixing the place of the office of the Association as San Francisco was discussed. Mr. Peart stated that it was not legally necessary to include a fixed place either in the Constitution or By-Laws, but that the place of business must be fixed in the Articles of Incorporation.

On motion of Catton, seconded by Shoemaker, it was

Resolved, That the main office of the Association be not fixed.

Discussion was then had as to the manner of presenting the Constitution and By-Laws to the House of Delegates. Mr. Peart suggested that Doctor Kress embody the views incorporated in both types of constitution and by-laws in the letter to accompany the two constitutions to be forwarded to all delegates and alternates.

This provoked an informal discussion, and it was finally unanimously agreed that the chairman of the Special Committee was to present the report of his committee to the House of Delegates. Any member of the house could then exercise his parliamentary privilege of proposing any amendments thereto.

On motion of Phillips, seconded by Hamlin, it was

Resolved, That the same committee be reestablished, and that it be the duty of that committee to present to the House of Delegates such matters pertaining to the proposed Constitution as shall be considered pertinent.

On motion of Phillips, seconded by Kelly, it was

Resolved, That the reestablished committee act in accordance with the resolution heretofore adopted by the Council; that each delegate and alternate be furnished with a draft of the proposed Constitutions two weeks before the annual meeting with such arguments as are given by the committee.

Doctor Kinney stated that the San Diego members were opposed to having the method of suspension of members so involved and that he thought final decision should rest with the Council. Other members thought final decision should rest with the House of Delegates who could, if desired, form a judicial committee to act in the interim between meetings.

**17. San Joaquin County Society.**—The question of setting the time of hearing on appeals of members of the San Joaquin County Society was again brought up.

On motion of Phillips, seconded by Kiger, it was

Resolved, That the San Joaquin County Society officers and Doctors Griner and Thompson be in-



formed that appeals will be heard at a meeting to be held on Saturday, April 28.

It was stated that the time of hearing could then be fixed by the chairman of the Council as Sunday.

The chairman fixed 3 p. m., Saturday, April 28, 1928, as the time.

18. **Adjournment.**—There being no further business, the meeting adjourned.

MORTON R. GIBBONS,  
*Chairman of the Council.*  
EMMA W. POPE,  
*Secretary,*

#### COMPONENT COUNTY SOCIETIES SAN DIEGO COUNTY

The Rees-Stealy Clinic has begun actual work on the extensive addition of thirty rooms to their present building at Fourth and Grape. This is a fine testimony to the volume and quality of service rendered by this enterprising firm. The expansion plans include the addition of several new men to the personnel of the clinic staff. These we hope to introduce to the journal readers later.

The new Scripps Metabolic Clinic at La Jolla is rapidly approaching completion, and will probably be ready for occupancy the latter part of September.

The new wing of Mercy Hospital is already roofed and will be open to the public before the close of the year. This south wing nicely balances the north wing, giving to the whole group a symmetrical appearance. This wing represents a gift by the late John D. Spreckels. It adds fifty-five beds to the hospital, thus bringing its capacity to a total of 350 beds.

ROBERT POLLOCK.

#### CHANGES IN MEMBERSHIP

##### New Members

Los Angeles County.—Izak Alcazar, Long Beach; Harry H. Blodgett, Beverly Hills; George C. Burns, Washburn D. Chipman, John B. Clark, W. Hinton Drummond, Alexander V. Golitzin, James Green, Edward R. Hanlon, Orra M. Henderson, Karl E. Kretschman, Sophie Lurie, Valdemar Pleth, Ihil Rubenstein, Howard L. Updegraff, Joseph Walker, Los Angeles; Joseph P. Szukalski, Pasadena.

San Diego County.—Elmo G. Crabtree, San Diego.

San Francisco County.—Henry Clarke Davis, San Francisco.

Sacramento County.—Joseph A. Sampson, Sacramento.

##### Transferred Members

Paul S. Barrett, from San Mateo to San Francisco County.

Emelie A. De Eds, from San Francisco County to Washington, D. C.

Newton G. Evans, from San Bernardino to Los Angeles County.

S. W. Hastings, from Los Angeles to Monterey County.

Joseph A. Sampson, from San Francisco to Sacramento County.

T. R. Trick, from Merced to Los Angeles County.

Harold W. Wright, from Los Angeles to Ventura County.

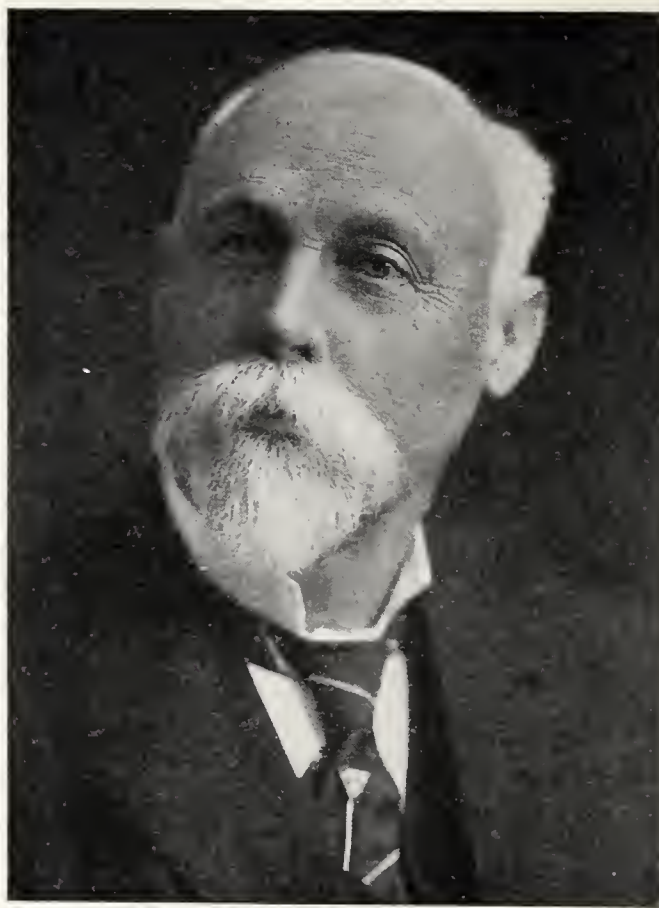
##### Deaths

Bagg, Charles P. Died at Los Angeles, July 29, 1928, age 62 years. Graduate of Medical College University of Southern California, 1888. Licensed in California, 1888. Doctor Bagg was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

#### OBITUARY

Henry Green Brainerd, born at Londonderry, New Hampshire, on May 23, 1852, died on July 22, 1928. His death was due to coronary sclerosis. For a year or more he had been suffering from angina attacks.

Graduating from Rush in 1876 it was the fortune of Doctor Brainerd to engage in the practice of medi-



Henry Green Brainerd  
1852-1928

cine for more than a half century. That in itself is a longer period than comes to most of us, but that his more than a half century of practice should have been associated to a most unusual degree with a capacity for efficient and kindly service in the healing art, is what differentiates him from most of his fellows. It explains why both in and out of the profession he was loved and respected, and why his aid was sought not only in matters of medicine, but by those who sought counsel from an ideal physician.

Henry Green Brainerd came from old New England Revolutionary stock, in which succeeding generations, through rigid self-discipline, self-denial, and unceasing struggle against the odds of a harsh environment, had battled on to successful living. His own father, Timothy G. Brainerd of Albany, New York, when a young man, rode four days from Albany to Yale College, determined to get an education. He had no other possessions than the horse that carried him. When he arrived at his destination he sold his horse and settled down to the business of working his way through school, and for four years did not return to his home. He later graduated from the Andover Theological Seminary, marrying subsequently a Lucinda Rebecca Dewey, a cousin of the late Admiral Dewey. One of the three children of this union was Henry Green Brainerd, the subject of this sketch.

The family later moved to Grinnell, Iowa, Henry Brainerd going to Dartmouth College in New Hampshire, working his way through college and then becoming a principal of a high school. In Independence, Iowa, he became acquainted with Doctor Hill, the superintendent of the State Hospital, and through him changed his outlook, and entered medicine, graduating in 1876 in the same class with his friend, the late John B. Murphy.

After graduation he returned to the hospital at Independence, Iowa, and was its assistant superintendent for a period of some seven years.

Doctor Brainerd in 1879 married Miss Alma Loomis, a sweetheart of his college days, but in 1882, when a child came to bless the union, the wife died



of puerperal infection. He went East to carry on his further studies, and while there his baby was stricken and also died. This double loss was a turning point in his life.

He could not get back into his work with any zest and decided to take a rest in California, after which he intended to return to Chicago to go into practice with a friend. In Los Angeles he changed his plans, and invested his savings. Then came the collapse of the Los Angeles boom, and what he had worked for was lost.

He went East and worked with Welch of Johns Hopkins, and afterward married Miss Fannie Howard in 1887. Two sons were born of this union.

When he returned to Los Angeles he became superintendent of the County Hospital for about four years, and almost from the beginning was a member of the faculty of the College of Medicine of the University of Southern California, taking up the specialty of nervous and mental diseases.

In 1886 on behalf of the medical faculty he organized the dental department of the University of Southern California, and was its dean from 1889 to 1902. He was also for a time dean of the College of Medicine.

He had a large part in establishing the Psychopathic Hospital and in establishing methods of handling the insane.

At different times he was president of most of the city, county, and state medical organizations. Among other honors was that of president of the California Medical Association in the year 1923.

Doctor Brainerd maintained a very real interest in matters of medical organization, and his quiet influence went far in the establishment of the things in which he believed. In recent years he gave special attention to eugenics, holding that through properly exercised birth control, much good could be done in civilization, in relieving the most needy members of society. He gave his time and purse in support of the movement, and in his will left \$30,000, the income of which was to go to the furtherance of that work.

His genial smile was known and cherished by all who contacted with him, and yet his life was filled with sorrows and trouble that come to but few men. Nevertheless he was never too tired or too busy not to be able to listen to friend or patient, and in the aid of the poor he was even more self-sacrificing than of the well-to-do.

In his practice, while he was a busy man, he accumulated but little, but fortunately some few investments that he had made turned out well, and permitted him in his will to leave bequests for purposes that were dear to his heart.

One of his colleagues, who had long been associated with him, stated that in some twenty-two years he had never heard Doctor Brainerd speak an unkind word of a fellow practitioner, nor, for the matter of that, of any person. His personal life at home and abroad was ideal, and he permitted no provocation to ruffle him or to make him indulge in harsh words.

He was a Christian whose religion was a very living and motivating factor in his life, but he was tolerant and with a breadth of viewpoint such as but few churchmen have. Never intruding his belief on others, but in his own life always giving expression to the finest standards of righteousness.

All in all he was a fine type of the old-fashioned general practitioner who was the friend and advisor of the families who came to him and whose advice was sought on both medical and nonmedical matters.

In southern California the place which he occupied in the affections of his colleagues and of his fellow citizens was unique. His death will not mean the cessation of his influence, because the goodness of his life and the spirit of service which were part and parcel of his every fiber have influenced a large number of his fellows. In working for the principles he believed in they will keep Henry Green Brainerd a living force in the community which he served for so many, many years.

H.-K.

## UTAH STATE MEDICAL ASSOCIATION

WILLIAM D. DONOHER, Salt Lake.....President  
H. P. KIRTLEY, Salt Lake.....President-Elect  
M. M. CRITCHLOW, Salt Lake.....Secretary  
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....  
.....Associate Editor for Utah

### NEWS

#### Scientific Program, Thirty-Fourth Annual Session

June 29-30, 1928

The following program of scientific papers and social activities was carried out. Members who attended look back at a most pleasant and profitable meeting.

FRIDAY, JUNE 29

#### MORNING

Personal Experiences in Abdominal Surgical Emergencies—Isidore Cohn.

Acute Abdomen—George Thomason.

Abdominal Pain and Pleural Reflexes—Joseph A. Capps.

#### AFTERNOON

President's Address—Eugene H. Smith.

Treatment of Carcinoma of the Lip and Tongue—Edwin I. Bartlett.

Carcinoma of the Lung—Carl A. Hedblom.

The Story of Ethylene Gas, the New General Anesthetic—A. D. Luckhardt.

Fractures of the Humerus—Isidore Cohn.

#### EVENING

Diagnosis and Treatment of Infections of the Hand—Motion Pictures.

Recent Developments in the Study of Bone Tumors—Edwin I. Bartlett.

Operation for Injuries of the Biceps Flexor Cubiti—Lantern Slides—Edgar L. Gilcreest.

SATURDAY, JUNE 30

#### MORNING

Quinidin in Various Cardiac Irregularities, including a Safe Indication for Its Use. Moving Picture Demonstration of the Living Animal Heart Showing Various Cardiac Irregularities—Harry Spiro.

Pericardial Pain—Joseph A. Capps.

Etiology and Treatment of Pulmonary Abscess, and the Surgical Treatment of Pulmonary Tuberculosis—Carl A. Hedblom.

#### AFTERNOON

Report of Delegate to American Medical Association—E. M. Neher.

Surgery of the Reticulo-Endothelial System—Isidore Cohn.

Physiology of the Parathyroid Glands—A. D. Luckhardt.

The Prognosis and Treatment of Bacterial Endocarditis—Joseph A. Capps.

Surgical Pathology of Breast Conditions—Edwin I. Bartlett.

#### EVENING

Annual Banquet—Hotel Bigelow.

A Bicentenary Address on John Hunter and the Debt that Surgery Owes Him—Edgar L. Gilcreest.

#### Eye, Ear, Nose and Throat Section

Hotel Bigelow

FRIDAY, JUNE 29

#### MORNING

Relation of Ocular Muscles to Refraction—Joseph McCool.

General Principles in Nose, Ear and Throat Practice—Eugene Lewis.

Some Common Delusions in Connection with the Eyes—Aaron Green.

Observations on Clinics in Europe and the Orient—Fred Stauffer, Salt Lake City.

SATURDAY, JUNE 30

#### MORNING

Operative Mistakes in Ophthalmology—Joseph McCool.

The Ear and Hearing—Eugene Lewis.

Focal Infections in Relation to Diseases of the Eye—Aaron Green.



## OBITUARY

## S. D. Calonge, 1878-1928

Dr. S. D. Calonge, 49, prominent Salt Lake physician and surgeon, died Saturday, July 21, of injuries sustained in an automobile accident.

Doctor Calonge was secretary of the board of directors of Saint Marks Hospital, a member of the staff of the Salt Lake General Hospital, and a member of the Kiwanis Club. He was a member of the American Medical Association, the Utah State Medical Association, and the Salt Lake County Medical Society. He was a captain in the medical reserve of the United States Army.

He had practiced his profession in Nampa, Idaho, and in Salt Lake City for a total of twenty years. He was a graduate of the Keokuk Medical College of Keokuk, Iowa.

Salt Lake physicians served as honorary pallbearers at the funeral, held on Tuesday following Doctor Calonge's death. They were: Doctors A. C. Behle, C. M. Linden, E. M. Neher, J. P. Kerby, G. F. Roberts, W. S. Keyting, H. P. Kirtley and R. S. Allison.

Services were conducted at the grave side by Progress Lodge No. 22, F. and A. M.

## THE HOUSE OF DELEGATES

## Minutes of Thirty-Fourth Annual Session

June 29 and 30, 1928

Hotel Bigelow, Ogden, Utah

First session: June 29, at noon.

Called to order by President Eugene H. Smith, of Ogden.

Roll call of delegates by secretary. Quorum present.

\* \* \*

## PRESIDENT'S ADDRESS

DR. E. H. SMITH, OGDEN

In the absence of any formal address of welcome, it is my pleasure to extend to the members of the Utah State Medical Association the hearty greetings of the Weber County Medical Society and the citizens of Ogden.

To our distinguished visitors from north, south, east and west, we extend our warmest welcome and our sincere thanks for their kindness in coming to us. We of the intermountain country are isolated. The pioneers of this region came here for the very purpose of separating themselves from the rest of the world. But their descendants and the world have changed in the almost four score years that have elapsed since that time, and I am sure that you will find us broad-minded and anxious for all helpful contact with the world at large. Our very isolation heightens our appreciation of your presence among us and increases our eagerness to hear your messages from the larger centers of medical education.

Here I desire to thank the officers and members of the association who have so kindly answered all calls for help and advice during the past year. Whatever has been accomplished has been their work, not mine.

Our former secretary, Frank Steele, who served us conscientiously in that capacity to the limit of his physical endurance, found it to his advantage to leave the state to accept a hospital appointment near Chicago. We are glad to learn that he is pleasantly occupied and is regaining his health. Upon the departure of Doctor Steele, Dr. M. M. Critchlow was elected by the council to serve until the next election. His services have been invaluable, and I am sure that you will see to it that he receives the reward, or punishment, which he merits.

It had been my intention to urge upon the Committee on Scientific Work the desirability of setting aside a part of the time of this meeting for the presen-

tation of papers by members of this association. However, the shortness of the session and the generosity of our visitors, impelled the committee to arrange the program as it stands. I strongly feel, however, that in the future, opportunity be given our members to present papers embodying personal original research, laboratory or clinical, at the annual meetings.

I am certain that those members of the association who have not held official positions will be surprised at the number and diversity of the problems which are now put up to the medical profession for advice and approval. I will mention only a few which have come to our attention during the past year:

Homes for aged physicians; birth control; legislation regarding prescriptions of alcohol; medical practice acts in the District of Columbia and various states; the expert witness; education of nurses; the cost of medical care; mental hygiene; clinics; advertising of physical therapy apparatus to the laity; periodic health examinations; the physician and the income tax; supply of physicians in rural communities.

The significance of this wide appeal to the medical profession lies in this, that the public is looking to us as men and women especially qualified by education and experience to give expert advice concerning these problems which are daily becoming more acute. Our response to these appeals will have an important bearing on the attitude of the public to our profession.

Perhaps never before has the medical profession been held in such universal respect as at this present time. Millions of dollars, from public and private sources, are being given and spent each year in the development of institutions for medical education. Criticisms of the profession appearing in the daily press and in current literature are, with few exceptions, sympathetic and constructive. We are indeed highly favored. It behooves us to put forth every effort, in our societies and associations, in the practice of our profession, and in our activities as citizens, to even more fully meet the expectations of those who in such a substantial manner have shown their good will toward us.

Before intelligent action is possible on any of these matters, we must consider them from every angle, and then discuss them in our meetings. It is obviously impossible in a scientific session of this kind to give them the consideration they deserve. Would it not be well if, throughout the year, the more important of these problems could be discussed in each local society—talked over in the family circle, as it were. In this way it would be possible to develop a force of intelligent medical opinion, which in state and national associations could be crystallized and made helpful and effective.

Three problems of special importance, out of many, demand our attention at this time:

First: The relation of private physicians to organized public health work. The public is demanding that this work be carried on. If the medical profession does not take the front rank in formulating its policies and correcting its abuses, others will, and we will eventually find ourselves privates in the rear ranks, taking orders from less intelligent but more energetic commanders.

Second: The problem of the free clinic is ever with us. Many battles are still being waged over this dark and bloody ground. The clinic cannot exist without us, and if abuses arise we are often the cause and always the victims. Now comes the pay clinic where everyone expects pay except the doctor. If talking could have solved this problem it would have been settled long ago. But it is still in our midst and still demands our attention.

The third problem to which I would direct your attention is thus characterized by Dr. Olin West, secretary of the American Medical Association: "The one great outstanding problem before the medical profession today is that of adequate, scientific medi-



cal service to all the people, rich and poor, at a cost which can be reasonably met by them in their respective stations in life." In its broader aspects the problem includes the two which I have just mentioned. More and more the medical profession is being pressed for an answer. The keenest analysis, the broadest sympathy and the most constructive thinking of the profession should be placed at the disposal of any agency which honestly seeks an equitable solution of this problem.

In thus making these problems our own the welfare of the public will not be jeopardized, since from time immemorial the first interest of the physician has been the welfare of his patient. Their solution in consonance with the ideals and ethics of the medical profession will bring forth nothing but good to humanity at large.

For these reasons I trust that in increasing measure the members of this association may direct their thoughts and bend their efforts to the application to present-day problems, of those high ideals which through the ages have ennobled our profession.

\* \* \*

1. REPORT OF THE SECRETARY, DR. M. M. CRITCHLOW  
SALT LAKE CITY

The association sustained a great loss this year when the secretary, Frank B. Steele, moved from Utah to Illinois. He had practiced many years in this state, and his loss is greatly felt by his friends and by the association, which he served so well for nearly three years as secretary. The undersigned assumed his duties April 1, and asks forgiveness for his shortcomings.

The last meeting of the association was held in Salt Lake City, June 23-25, 1927. At that time the membership was 370, a gain of thirty over the previous year. At the present time there are 378 members, represented by counties as follows:

|                        |     |
|------------------------|-----|
| Box Elder County ..... | 8   |
| Cache Valley.....      | 16  |
| Carbon County .....    | 15  |
| Salt Lake County.....  | 242 |
| Uintah County.....     | 6   |
| Utah County .....      | 42  |
| Weber County .....     | 49  |
| Total.....             | 378 |

The following members and former members have died during the year: E. S. Wright, W. H. Bash, and George V. Schramm. Obituaries were printed in CALIFORNIA AND WESTERN MEDICINE.

During the year F. B. Steele mailed a Manual of Suggestions for the Conduct of Periodic Examinations of Apparently Healthy Persons to each member of the association, as recommended by the delegate to the American Medical Association last year. It is hoped that these have been studied, and each member is urged to spread propaganda for periodic examinations.

The delegate's report, read before the House of Delegates last year, was sent to the secretary of each county society.

This session of the House of Delegates is confronted with the gigantic task of voting on a proposed new Constitution and By-Laws. Each delegate and alternate has been mailed a copy, together with the changes suggested by the council, so that due deliberation could be given to that very important matter, and it is hoped that an agreement can be reached without undue delay at this session.

President Smith appointed a Reference Committee early this year, and the chairmen of the various committees were urged to have their reports in the hands of the Reference Committee by June 1 so that much time might be saved at these meetings.

It has been a lamentable fact that in the past, recommendations made by various committees have been

lost sight of, chiefly because an entirely different personnel has been appointed on most of the committees each year. If the new Constitution and By-laws is adopted, this will not happen, as only one new member will be appointed each year, the others remaining on the committees. It is hoped that this will enable the committees to do continuous progressive work.

The Committee on Public Policy and Legislation has important work to do next year. In addition to the routine work connected with the legislature, it has been recommended that the state statute which pertains to privileged communication between physicians and patients be changed. The secretary has been informed by competent attorneys that it is possible to draft a statute so that physicians will not be at such a disadvantage in personal injury and malpractice suits. This is of paramount importance, and unceasing effort must be made to put this bit of legislation over.

It is possible for the Utah State Medical Association to wield a powerful influence in protecting the profession in the state. However, the strength of the organization depends entirely on the interest taken in it by the members. Naturally most of the work has to be done by committees, in whose hands our success or failure lies. It is to be regretted that occasionally a committee meets only to make a report before this body. It is recommended that each committee meet early, make an exhaustive study of its problems and methods of procedure, and work hard during the year to attain the purpose for which it was created, thereby promoting the science and art of medicine, the protection of public health, and the betterment of the medical profession, which are the aims of this organization as outlined in the Constitution.

\* \* \*

2. REPORT OF THE TREASURER, DR. EDWARD D. LeCOMPTE  
For the period of June 23, 1927, to June 30, 1928.

RECEIPTS

|                                                                            |            |
|----------------------------------------------------------------------------|------------|
| Cash in National Copper Bank checking account on June 23, 1927.....        | \$3,190.88 |
| Dues of members received from component county medical societies:          |            |
| Salt Lake County.....                                                      | \$1,236.10 |
| Box Elder County.....                                                      | 40.00      |
| Cache Valley.....                                                          | 80.00      |
| Carbon County.....                                                         | 85.00      |
| Uintah County.....                                                         | 30.00      |
| Utah County.....                                                           | 220.00     |
| Weber County .....                                                         | 235.00     |
| From the Postgraduate Committee.....                                       | \$1,926.10 |
| From annual banquet tickets.....                                           | 425.00     |
| Interest on bonds—coupons.....                                             | 153.00     |
| Balance from savings account in bonds purchase, \$4,569.17-\$4,543.33..... | 120.00     |
| Deposits of July 16, 1927.....                                             | 25.84      |
| Deposit of July 20, 1927.....                                              | 112.00     |
| .....                                                                      | 81.02      |
| Total receipts.....                                                        | \$6,033.84 |

DISBURSEMENTS

|                                                                                                                                       |            |
|---------------------------------------------------------------------------------------------------------------------------------------|------------|
| Expenses incident to the thirty-third annual meeting, June 20, 21 and 22, and the 1927 postgraduate course, June 23, 24 and 25, 1927: |            |
| Entertainment and expenses of guests, hotel bills, electrical service, drayage, etc. ....                                             | \$222.30   |
| Annual banquet .....                                                                                                                  | 381.15     |
| Binding proceedings, 1927 meeting.....                                                                                                | 4.50       |
| Printing .....                                                                                                                        | 76.15      |
| .....                                                                                                                                 | \$684.10   |
| Subscriptions to California and Western Medicine at \$2 per member.....                                                               | 742.00     |
| Office of the secretary: Salary \$250 per annum .....                                                                                 | \$500.00   |
| Allowance for amanuensis, \$10 per month .....                                                                                        | 120.00     |
| .....                                                                                                                                 | \$620.00   |
| Office of the treasurer, salary.....                                                                                                  | 25.00      |
| Fidelity bond of treasurer, yearly premium .....                                                                                      | 2.50       |
| .....                                                                                                                                 | \$27.50    |
| Delegate to the A. M. A.—Expense allowance .....                                                                                      | 150.00     |
| Printing, binding, stationery, etc.....                                                                                               | 28.00      |
| Stenographic service and telegraphing.....                                                                                            | 17.98      |
| Booklets on health examinations.....                                                                                                  | 40.00      |
| Transferred to savings account.....                                                                                                   | 1,765.30   |
| ..... (Less \$32.50)                                                                                                                  |            |
| Total disbursements.....                                                                                                              | 4,042.38   |
| Balance, receipts over disbursements.....                                                                                             | 1,991.46   |
| .....                                                                                                                                 | \$6,033.84 |



## SAVINGS ACCOUNT

|                                                                                |            |
|--------------------------------------------------------------------------------|------------|
| Amount in National Copper Bank savings account No. 18973 on June 23, 1927..... | \$2,729.94 |
| Transferred from checking account, September 10, 1927 .....                    | 1,765.30   |
| Interest on savings account, October 1, 1927.....                              | 54.52      |
| Sale of three second Liberty loan bonds and accrued interest .....             | 306.36     |
| Interest on savings account, April 1, 1928.....                                | 95.06      |
| Total savings account, April 4, 1928.....                                      | \$4,951.18 |
| Withdrawal for purchase of Utah Power and Light bonds (four) .....             | 4,569.17   |
| Total of savings account, June 30, 1928.....                                   | \$ 382.01  |

## HARLOW BROOKS FUND

I also carry for the association \$4000, Utah Power and Light Company Debenture bonds (6 per cent) series, due May 1, 1922, bearing interest of \$240 per year.

\* \* \*

3. REPORT OF THE COUNCIL: DR. JOSEPH HUGHES  
SPANISH FORK

The council respectfully submit the following report:

First: Copies of the new Constitution and By-Laws were printed and mailed to the societies throughout the state so that the physicians generally could discuss intelligently its adoption at the Ogden convention.

Second: After considerable informal discussion and investigation, the council authorized the investment of \$4000 (four thousand) in Utah Power and Light 6 per cent Debenture bonds, the balance to be left in the savings accounts at 4 per cent.

Third: The council coöperated in every way with President Smith in selecting committees and making arrangements for the Ogden convention. It was decided to hold a two-day session. We feel that it will be one of the best conventions ever held by the association.

Fourth: The council had the unpleasant experience of trying to settle difficulties and disturbances arising in the Carbon County Medical Society. After a careful consideration of the case of Doctor Ruggeri the council went to Price, Utah, on April 28, 1928, and held a meeting with the society. . . . Finally a motion was carried for the censors of the Carbon County Medical Society to go into special session and make a careful investigation of the charges made and report later for final action. If the society failed to settle their difficulties, then the council would settle them.

Fifth: Resolutions supporting the Medical Society of the District of Columbia in their effort to get a comprehensive medical practice act passed by Congress to govern the practice of medicine in District of Columbia were submitted and adopted unanimously.

Sixth: The secretary was requested to ask Doctor Giesy for a statement of his expenses as associate editor and to inform him that, in the opinion of the council, the associate editor should receive no salary.

Seventh: The council desire to commend the state officers of the association and the various committees for their untiring efforts in upholding the high standing of the medical profession and of the Utah State Medical Society. Let us all pull together for a better and greater association in Utah.

Now regarding the Carbon County trouble, I have felt that if the doctors understood the Constitution and By-Laws of our association more thoroughly there would be a better and more friendly feeling existing between the members of our various societies. I feel that we should recommend to medical colleges that a course in medical ethics should be given all students of medicine so they would have a better understanding of the ethics in the practice of medicine.

\* \* \*

## COMMITTEE ON SCIENTIFIC WORK

President Smith: I suppose the Committee on Scientific Work, inasmuch as they prepared the program that is being presented, and are responsible for it, thought that would be sufficient report. They evi-

dently think we can judge their work from the program here presented.

\* \* \*

4. REPORT OF THE COMMITTEE ON PUBLIC POLICY  
AND LEGISLATIONDR. A. C. CALLISTER, *Chairman*

Mr. President and Delegates:

There has been no session of the Utah State Legislature this year so that we have had no active work to accomplish with that body.

In response to the desire of the House of Delegates, the matter of changing the statutes of this state in the matter of admitting privileged information as testimony in personal injury cases that is not now admissible, we have taken this matter up with several prominent members of the legal profession and one Third District judge. Their attitude is one of extreme caution in regard to any change in this matter, but feel that a measure can be drafted that will change the statutes to the extent that the testimony that the House of Delegates desires in damage suits instituted for personal injuries arising out of industrial accidents, may be given.

We feel that we should urgently call to your attention that social or state medicine is making great strides in Salt Lake City due to the enterprise of a promoter aided and abetted by some members of our profession seeking personal gain from the enterprise, regardless of the fact that this enterprise will work to the unfair disadvantage of the medical profession at large.

This enterprise was promoted by an individual who promoted a similar venture in the undertaking business which is proving highly successful. He has taken several societies already organized, such as the Dutch society, and has sold them medical services at the rate of \$1.75 per month per family. Just what these services include we do not know, except that it does not include obstetrics or surgery, but it is understood that these families are to receive these latter services at one-half the current price usually charged for these services.

We feel as a committee appointed by your association to look after any public enterprise which adversely affects the welfare of the profession at large, that the action of any and all physicians who for the sake of small personal gain would sacrifice the welfare of the medical profession and through their services put money in the pocket of a promoter who has done nothing to earn it except to organize an enterprise which, as it develops, will work incalculable harm to our profession, are guilty of conduct more reprehensible than fee-splitting.

Our hospitals have taken a very determined attitude toward this latter medical crime, and we wish to urge the staffs of all hospitals to take due cognizance of any staff member or doctors having hospital privileges at their respective hospitals, who are working for this promoter and thus prostituting their profession, and deal summarily with them as though they were proven fee-splitters.

SECOND SESSION: FIVE O'CLOCK P. M., FRIDAY  
JUNE 29, 1928

The president announced that reports of committees would be continued.

\* \* \*

REPORT OF THE COMMITTEE ON PUBLIC HEALTH  
W. R. CALDERWOOD, *Chairman*

A study of the public health question presents to your committee some important problems to which we desire to call your attention:

(a) We believe there is a general lack of information on the part of members of this association of the nature and extent of work being done in public health by both official and nonofficial organizations in this state.

As a result of this lack of information there is a lack of interest in and appreciation of the work being



done. We suggest that members make a more careful study of the efforts put forth on public health work by these organizations. We particularly commend to your attention the work being done by the State Board of Health. We believe their efforts are directed along safe and sane lines and that they are deserving of our united and whole-hearted support.

(b) We find an absence of any agency by means of which an efficient system of coöperation and co-ordination can be brought about among the various organizations engaged in public health work.

(c) There is no recognized system by means of which organized medicine can meet the demands of the public for better health education.

(d) The press and broadcasting stations have no authoritative source to which to go to check up on or authenticate items on health problems of interest to the public.

(e) Clinics are being organized, supposedly for the care of the indigent or semi-indigent, and the medical profession are asked to lend their aid and assistance without their being afforded sufficient safeguards against imposition.

As a result of a lack of any efficient agency to correct the above enumerated faulty conditions, much misunderstanding has arisen and there has been much adverse criticism of both official and nonofficial organizations engaged in the conservation of human health, and a lack of sufficient work of a constructive nature.

Some members of our association have responded to the call of the public for enlightenment on health problems, and have, in some instances, abused the privilege thus afforded them.

Both the press and the broadcasting stations have been imposed upon and much worthless or harmful material has been fed the innocent and unsuspecting public whom we, as the guardians of health, should protect.

As a means of correcting some of these outstanding failures to function to best advantage, and as a means of keeping this association in more intimate contact with public health activities, we recommend that the president be authorized and requested to appoint a committee of three members to be known as the Committee on Coördination on Public Health Activities, one member to serve for a term of one year; one for a term of two years, and one for a term of three years. After the first year, one member to be appointed each year to serve for a period of three years.

This committee should have power to act for and on behalf of this association in an endeavor to bring about a more united and more harmonious action on the part of all organizations engaged in public health work in this state, and to bring to the attention of this association at its annual meeting, or to any of its component societies at any time, if found advisable, the result of its investigations and efforts.

That this committee be authorized and requested to offer its services in an advisory capacity to the press, to broadcasting stations, and to both official and nonofficial organizations on any and all matters pertaining to public health; that they assist in the preparation or selection of suitable material on health topics for publication, lecture, or broadcasting; and in any way which seems to them proper, use their influence as the spokesman of this society for the betterment of public health in this state; that if necessary to function most efficiently, this committee be empowered to appoint such subcommittee or subcommittees as may seem to them necessary.

We recommend that this association lend its influence in furthering the efforts of the Utah Society for

Mental Hygiene for the securing of the following objectives:

1. The establishment of a separate state training school for the feeble-minded.
2. Special classes in the public schools for borderline defectives.
3. Mental hygiene clinics serving the larger public schools and juvenile courts of the state.
4. Psychiatric service in adult criminal courts, jails, the state prison, and the State Industrial School.
5. Improved facilities at the State Hospital. (In medicine, psychiatry, nursing, psychology, education, and social service.)
6. The use of hospital facilities rather than jails as places of detention for persons suspected of mental disorder.
7. The creation of central State Board of Institutions (or Public Welfare) with psychiatric service available to all state institutions.
8. The education of the public sentiment as to the true nature, extent, causes and means of preventing nervous and mental disorders.

And that this body instruct its Committee on Public Policy and Legislation to assist in every way consistent to the necessary legislation to bring about the aforesaid results.

Respectfully submitted,

W. R. CALDERWOOD, *Chairman*  
H. P. KIRTLEY  
JOHN Z. BROWN

Committee on Public Health, Utah State Medical Association.

\* \* \*

UNIVERSITY OF UTAH ADVISORY COMMITTEE

H. P. KIRTLEY, *Chairman*

By authority of President E. H. Smith of the Utah State Medical Association, the chairman was permitted to enlarge this committee. Accordingly the following men met with Dean R. O. Porter of the University of Utah Medical School on Tuesday, May 29, at 10 a. m.:

William F. Beer, C. M. Benedict, M. M. Critchlow, W. D. Donohoe, E. R. Dumke, G. W. Fister, F. A. Goeltz, H. C. Stranquist, Sol G. Kahn, T. H. Kelly (visitor from San Francisco), H. P. Kirtley, C. E. McDermid, E. F. Root, E. H. Smith, Clarence Snow, Fred Stauffer.

It was regretted that President Thomas of the University of Utah was unable to be present.

Dean Porter briefly discussed the requirements for admission to the Medical School, which is limited to twenty-five or twenty-six students in each class. Of these about twenty finish the second and last year. Three years of premedical work is required. The list of applicants is very large, so only the best students are chosen. Most of them are from Utah, but one or two are admitted each year from other states. Other things being equal, preference is given to sons of physicians. Accordingly scholarship is very high, and Utah graduates stand among the first in the class of the medical schools in which they are placed.

In the last five years no student placed in a medical school has failed to graduate. The requirements for admission are necessarily high, as they must meet the requirements of all the medical schools, and most of the schools admit a Utah man without question.

None of the students are placed in California schools, as that state cannot take care of its own applicants. Harvard, Pennsylvania, Northwestern, Rush, Western Reserve, Washington University and Barnes take most of the students. The tuition and various

fees amount to about \$200 per year, while the cost of maintaining the school is about \$40,000 a year.

Informal discussion followed, after which a tour of inspection was made. The students were seen at work in the physiology and pharmacology laboratories, and in the dissecting room. Dr. Shackell explained a problem on which he was working, namely, a colormetric test for pepsin function. All the equipment was in good condition, and there was enough of it for the needs of the students.

After the inspection a delicious luncheon was served by the Home Economics class, and an informal discussion was held.

A few of the committee were present five years ago and remarked on the continued and gratifying improvements made during Dean Porter's administration. A real medical school has developed from a rudimentary one. The committee takes pleasure in congratulating Doctor Porter, and feels that the Utah State Medical Association should take pride in the institution, back it, and advertise it. It recommends that the Legislative Committee of this association strive to obtain from the legislature sufficient funds for the school, so that it can operate in an efficient manner without the continual necessity of conniving to make one dollar do the work of two.

Respectfully submitted,

H. P. KIRTLEY, *Chairman*  
F. A. GOELTZ  
CLARENCE SNOW  
T. C. GIBSON  
H. C. STRANQUIST

\* \* \*

#### NEW BUSINESS

The following resolution prepared by Doctors Kahn and Neher was presented:

Whereas, The greatest need for preventive medicine is shown to be in diseases of middle life, and

Whereas, Periodic yearly physical examinations is the best means of detecting these diseases in their incipient stage; be it

Resolved, That the secretary of our state association be instructed to have copies of the letter adopted by the trustees of the American Association setting forth the value of periodic physical examinations mailed to every household in the state; be it further

Resolved, That copies of said letter, setting forth the value of periodic health examinations made by their family physician, be sent to every employer listed with our State Industrial Commission, requesting the employer to post the letter on bulletin board or in some conspicuous place where it may be read by the employees; and be it further

Resolved, That a copy of this resolution be sent to our State Women's Auxiliary asking them to kindly teach and preach the value of periodic health examinations to our various clubs and civic organizations in their respective communities.

(Signed) E. M. NEHER  
SOL G. KAHN

#### THIRD SESSION: TWELVE NOON, SATURDAY

Meeting called to order by President Smith.

Roll call of House of Delegates showed quorum present.

Abstract of minutes of meetings of previous day read by the secretary and, with one exception, approved.

President announced that the first order of business would be the election of officers; that we were to elect a president-elect; first, second, and third vice-president; councilor for the Second District; councilor for Third District; secretary and a treasurer.

The election of officers resulted as follows:

President, William D. Donohar, Salt Lake; president-elect, Howard P. Kirtley, Salt Lake; first vice-

president, E. R. Dumke, Ogden; second vice-president, J. W. Aird, Provo; third vice-president, R. A. Pearce, Brigham; secretary (three-year term), M. M. Critchlow; treasurer, Edward D. LeCompte. The Council: First District, Joseph R. Morrell; Second District, F. A. Goeltz; Third District, C. E. McDermid. Delegate to A. M. A.: Sol G. Kahn; alternate delegate, E. M. Neher. Associate editor, J. U. Giesy.

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#### REPORT OF THE DELEGATE TO THE A. M. A.

Dr. E. M. Neher read a careful analysis of the recent Minneapolis session of the American Medical Association. Members who are interested are referred to the reports of officers and committees, and to printed minutes of the House of Delegates of the American Medical Association, which appeared in recent issues of the *Journal A. M. A.*

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#### REPORT OF THE COMMITTEE ON REVISION OF CONSTITUTION AND BY-LAWS

Dr. F. A. Goeltz submitted the various changes which were recommended and gave the reasons for making the recommendations. The Constitution and By-Laws as finally adopted will be printed by the association, and a copy sent to each member. The stenographic report of the various motions made and actions taken are filed in the secretary's records.

Doctor Goeltz: That is all we have to offer on the Constitution and By-Laws, Mr. President.

President Smith: Doctor Beer's motion that the Constitution, with changes as recommended by the council (as presented here by the committee), be adopted. Motion carried.

President Smith: The new Constitution and By-Laws are therefore accepted as read.

Doctor Kahn: Tell me where it says anything about annual dues. How much are the annual dues to this association, and who determines that?

President Smith: The dues are now \$5; the authority is in the House of Delegates.

Doctor Kahn: I move you that the annual dues of this association be \$4 per year. Seconded.

Doctor LeCompte: I object very much to that. It comes very much as a surprise at this time. I showed in my report that we have standing accounts to meet which will exceed the \$4 yearly dues. We have to pay \$2 out of our \$5 to the CALIFORNIA AND WESTERN MEDICINE for yearly subscriptions for each member which leaves us but \$3 to run on; and if we make the dues \$4 it leaves us only \$2 to run on. There are expenses coming up continuously, and I should hate to see that motion passed.

Doctor Goeltz: There are several journals to be paid for by the state association that the state association gets no money for. We have in most of our county medical societies a provision that after a member reaches a certain age his dues are automatically suspended, and it has been the practice of our state association to continue sending the journals to these members.

Doctor Callister: May I remind the House of Delegates that the legislature meets this coming year and that we have some important legislation to put over which will mean considerable money. I wish to amend Doctor Kahn's motion, that the dues of the association remain at \$5. Motion seconded.

Further discussion by Doctors Kahn, LeCompte, Callister, and others; also by President Smith.

President Smith put the question: Those in favor of reducing the dues to \$4 say "Aye." Question. Standing vote taken with nine for, eight against. Motion carried and dues, therefore, were reduced to \$4 per annum.

\* \* \*

#### REPORT OF THE REFERENCE COMMITTEE

First Vice-President R. L. Draper, presiding.

Doctor Goeltz (continuing his report from Friday afternoon's session): We recommend the adoption of



the report of the president, and wish to compliment him on his excellent address, on his assiduous work and untiring energy. He has some special recommendations which require action that we recommend for the early and earnest attention of the incoming officers.

\* \* \*

#### REPORT OF THE COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Inasmuch as our new Constitution and By-Laws, Chapter 9, provides that our membership be governed by the ethical principles of the American Medical Association, and is covered by the Code, Section 4, p. 7, "Advertising," we recommend that this matter be referred to the council for early and earnest attention.

We recommend the adoption of the report of the Committee of Public Health, and recommend that this be made one of the standing committees with duties as prescribed in the committee's report.

We commend the report of the delegate to the American Medical Association for adoption.

We recommend the adoption of the report of the Committee on Necrology, and ask that Doctor Isgreen's report include therein the death of Doctor Bash.

We recommend the adoption of the following resolutions:

Resolved, That the members of the Utah State Medical Association desire at this time to extend their most grateful thanks for the generous hospitality, many courtesies and coöperation shown them by the Weber County Medical Society, the ladies of the Weber County Society, the press of Utah, the Board of Education of Ogden, the Hotel Bigelow, and the Hermitage Hotel; and be it further

Resolved, That the thanks of the association be extended to the officers, council, and members of the Scientific Committee and the Committee on Arrangements for the excellence of the program and entertainment.

We also recommend the adoption of the resolution offered at yesterday's meeting, presented by Doctors Kahn and Neher, in re yearly periodic health examinations.

Mr. President, I move the adoption of this report in its entirety. Seconded and carried unanimously.

\* \* \*

#### UNFINISHED BUSINESS

Place of Meeting.—Doctor Kerby: I should like to recommend to the House of Delegates that the matter of holding our next convention in one or more of our southern Utah hotels be presented to the council by the Committee on Arrangements. I make a motion to that effect, and if they see fit, that, if possible, arrangements be made to hold the meeting at the same time the northwest group hold their convention, in case Doctor Root succeeds in bringing them here.

Doctor Donohar: The Pacific Coast Eye and Ear men meet in Salt Lake next year, and there is a tentative plan on now to arrange their meeting at the same time we hold the state association meeting. Whether that would interfere and whether those men could be persuaded to travel such a long distance from Salt Lake, I don't know. They will be either coming or going on their vacations, and their time will be very limited. I don't think it will be possible for them to spend that much time. I am not authorized to speak for those men, but it occurs to me that stating the place for the next meeting might interfere with the plans we might later desire to make.

Doctor Kerby: My motion was merely a recommendation. I do not wish to make it obligatory. It was merely a recommendation from the House of Delegates that the matter of holding our convention

at one or more of our southern Utah hotels be presented to the council.

Doctor Callister: I don't believe there is a place in southern Utah where our association could be accommodated.

Discussion by Doctors LeCompte and others regarding the facilities of Canyon hotels in Utah and the ease with which they are reached.

President Smith: All those in favor of the recommendation presented by Doctor Kerby, say "Aye." Motion carried.

President Smith then introduced the new president, William D. Donohar; and the president-elect, Howard P. Kirtley, stating that the incoming officers would be inducted into office at the general session immediately following this meeting.

Meeting adjourned, *sine die*, upon motion duly made, seconded, and carried.

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#### COMMITTEES OF THE UTAH STATE MEDICAL ASSOCIATION FOR 1928-1929

##### *Committee on Scientific Work*

M. M. Critchlow (chairman), Salt Lake City, (three years); G. G. Richards, Salt Lake City, (two years); F. A. Goeltz, Salt Lake City (one year).

##### *Committee on Public Policy*

Three years: A. C. Callister (chairman), Salt Lake City; J. Z. Brown, Salt Lake City; H. E. Dice, Moroni.

Two years: J. C. Landenberger, Salt Lake City; J. R. Morrell, Ogden; M. M. Nielson, Salt Lake City.

One year: D. C. Budge, Logan; T. J. Welsh, C. M. Benedict, Salt Lake City.

##### *Committee on Publication*

J. U. Giesy (chairman), Salt Lake City (three years); W. R. Tyndale, Salt Lake City (two years); Helmina Jeidell, Salt Lake City, (one year).

##### *Committee on Public Health*

Ezra Rich (chairman), Ogden (three years); R. S. Allison, Salt Lake City (two years); H. G. Merrill, Provo (one year).

##### *Committee on Medical Defense*

Three years: J. P. Kerby (chairman), Salt Lake City; R. C. Pendleton, Salt Lake City; W. E. Whalen, Ogden.

Two years: E. F. Root, Salt Lake City; W. G. Schulte, Salt Lake City; E. R. Dumke, Ogden.

One year: S. C. Baldwin, M. C. Lindem, Salt Lake City; L. W. Oaks, Provo.

##### *Committee on Medical Education and Hospitals*

Three years: Clarence Snow (chairman), E. D. LeCompte, Salt Lake City; E. F. Gianotti, Helper.

Two years: W. F. Beer, L. J. Paul, Salt Lake City; R. A. Pearse, Brigham City.

One year: J. E. Dowd, Guy Van Scoyoc, Salt Lake City; Homer Rich, Vernal.

##### *Committee on Medical Economics*

T. B. Beatty (chairman), Salt Lake City, (three years); F. S. Bascom, Salt Lake City (two years); Andy Dowd, Sunnyside (one year).

##### *Necrology Committee*

J. U. Giesy (chairman), Salt Lake City (one year); H. B. Felts, Salt Lake City, (one year).

##### *Reference Committee*

F. A. Goeltz, E. M. Neher, Salt Lake City; G. M. Fister, Ogden.

##### *Committee on Arrangements*

J. J. Galligan (chairman), S. G. Kahn, E. D. LeCompte, R. T. Jellison, M. M. Nielson, W. G. Schulte, Salt Lake City.

##### *Postgraduate Committee*

B. I. Burns (chairman), S. G. Kahn, Salt Lake City; Ezra Rich, Ogden.

## MISCELLANY

From time to time in this department of California and Western Medicine, appear columns grouped under the following headings: Comment on Current and Recent Articles in this Journal; News; Medical Economics; Readers' Forum; California State Board of Health; and California Board of Medical Examiners. For Book Reviews, see index on the front cover, under Miscellany.

## NEWS

**Meeting of Urological Association.**—The annual meeting of the Western Branch of the American Urological Association will be held September 13 to September 15, the first day in San Francisco and the second and third days at Del Monte. In addition to operative and dry clinics, papers will be presented by a number of prominent eastern and western urologists. All physicians are cordially invited to attend.

**Pacific Association of Railway Surgeons.**—The twenty-sixth anniversary of the Pacific Association of Railway Surgeons was held at San Francisco and San Quentin, August 24-25. The program was as follows:  
Address of Welcome—Hon. James Rolph, Mayor of San Francisco.

Address—Mr. E. H. Maggard, President Northwestern Pacific Railroad.

The Philosophy of Safety—Mr. L. H. Collett, Safety Supervisor Santa Fe Lines, San Bernardino.

Criminology in Railroad Affairs—Captain Duncan Matheson, Secretary-Treasurer Peace Officers Association of California.

Surgical Anesthesia—Dr. J. A. Lane, Eureka.

Covetous Neurosis—Dr. Philip King Brown, San Francisco.

Fractures of the Os Calcis—Dr. R. L. Dresel, San Francisco. Discussion by Dr. Philip Stephens, Los Angeles and Dr. W. B. Coffey, San Francisco.

The following officers were elected for the ensuing year: President, Dr. Philip Stephens, Los Angeles; first vice-president, Dr. W. H. Hood, Reno; second vice-president, Dr. Alson R. Kilgore, San Francisco; secretaries, Dr. C. A. Walker and Dr. William T. Cummins, San Francisco. The next annual meeting will be held at Reno, Nevada, the first Friday and Saturday in September, 1929.

**Clinical Congress of Physical Therapy.**—Announcement is made of the third clinical Congress on Physical Therapy in conjunction with the seventh annual meeting of the American College of Physical Therapy, to be held at the Hotel Stevens, Chicago, October 8-13, 1928.

Dr. Carl Sonne of the Finsen Medical Light Institute, Copenhagen, Denmark; Cav. Prof. Dr. Donato de Francesco of Venice, Italy; and Dr. A. R. Friel of London, England, will expound the results of their personal investigations in their respective specialties.

Physicians, their nonmedical assistants and technicians, and hospital executives properly vouched for, are invited to attend all sessions for which only a nominal registration fee will be charged.

Write for program, registration card and other information now, as early registration by mail is urgently solicited because the instruction classes are limited. Address: American College of Physical Therapy, Suite 820-30 North Michigan Avenue, Chicago, Illinois.

**American College of Surgeons.**—The American College of Surgeons will hold the eighteenth Clinical Congress in Boston, October 8-12. Headquarters will be at the Statler Hotel, and meetings will be held in the ballroom of the Copley-Plaza Hotel and Symphony Hall. An innovation this year will be the commencement of the clinics in the Boston hospitals on Monday afternoon, continuing through the mornings and afternoons of the following four days. Ether Day will be celebrated in the Dome Room of the

Massachusetts General Hospital on Friday, when a bronze bust of William T. A. Morton will be presented to the hospital. It was in this building that ether was first administered for the production of surgical anesthesia on October 16, 1846. Reduced fares on the railways of the United States and Canada have been authorized to those holding a convention certificate, so that the total fare for the round trip will be one and one-half the ordinary first-class one-way fare.

**Santa Monica Health and Welfare Center of the Los Angeles Health Department Dedicated.**—Wednesday afternoon and evening of August 7 witnessed the dedication of the new Health Center building located at 1529 Euclid Avenue, Santa Monica. The lot for the building was donated to the county of Los Angeles by the Santa Monica Council of Social Welfare, and the Board of Supervisors supplied the funds to erect the building at a cost of some eighty thousands of dollars.

The Health Center is the latest expression of this line of activity that has been inaugurated by the Los Angeles County Health Department, and is probably the most up to date and best equipped building of its type in the United States.

In the evening a dinner was given at the Deauville Club, and more than six hundred citizens were present. Speeches were made by Dr. Walter M. Dickie, director of the California State Board of Health; by Mayor Herman Michel; by County Supervisors R. F. McClellan and J. Bean; and Health Officer J. R. Pomeroy and other members of the medical profession.

The evening's entertainment closed with a pageant portraying the history of medicine in ancient and modern times written and directed by Jessica R. Cornett. The title of the pageant was "The Healing Vision," and had as its theme "The Progress of Medicine." In nine episodes, starting with the Egyptian, it represented methods used in curing mental and physical disorders.

The first was an Egyptian priest with his herbs and chants. The Greek priest in his priestly robes demonstrated belief in the healing power of music, and a small boy with a flute played during these rites.

A Hindoo priest in his robes carried a brass kettle of holy water and chanted. China was represented by Buddha with candles, incense and the burning of gold and paper money. An East Indian witch doctor danced, sang dolefully and scattered meal.

The blacksmith, who formerly extracted teeth and removed cinders; the barber, with his leeches and pole of bandages; the negro mammy with her rabbit's foot and incantations, chanting weird melodies; the country doctor, whip in hand, with his large bottles of bitter medicines, were followed by the modern doctor in his white garments, deftly administering to the patient.

**The California State Nurses' Association, Inc.,** and its official publication, *The Pacific Coast Journal of Nursing* announce the establishment of enlarged and improved headquarters and the appointment of Anna C. Jammé, R.N., as director at headquarters and editor-in-chief of the journal.

This change is indicative of growth and prophetic of an increasing usefulness toward which the nurses of California have been building during the past twenty-five years.

The address after the first of September will be 609 Sutter Street at Mason, Room 501, San Francisco.



**New York Academy of Medicine.**—Considerable interest has been shown by the medical profession throughout the country in the first "Graduate Fort-night" of the New York Academy of Medicine, on the problem of aging and of old age, which is scheduled for October 1-14, with two sessions daily at the Academy, and clinical demonstrations and lectures at thirty teaching hospitals.

Among the speakers to be present from abroad are Sir Farquhar Buzzard, Regius Professor of Physic at Oxford, and Dr. Vittorio Putti, orthopedic physician of Bologna.

**The Civil Legion.**—The Civil Legion is a strictly nonpartisan organization, whose membership is made up of citizens who served the national cause as members of the draft boards, councils of defense, and other authorized civil capacities during the World War and who, for various reasons, were denied the privilege of wearing the uniform.

The surviving war governors constitute the National Advisory Board, and headquarters are at 163 West Washington Street, Chicago, Illinois. Some twenty physicians, surgeons, and dentists constitute the California State Executive Committee. The third national convention will be held October 12-13, 1928, at Huntington, West Virginia.

## MEDICAL ECONOMICS

### COST OF MEDICAL CARE\*

#### Outline of Studies

##### PART III

#### Analysis of Specially Organized Facilities for Medical Care Now Serving Particular Groups of the Population

**11. Organized Medical Service in Industry and in Universities.**—Subjects to be included in this study are the number of industries and universities in the United States conducting medical or health services, the number of persons served, the number of persons employed, the range of the services, their cost to the industry or university and to individual workers, a comparison with similar cost in unorganized practice, the compensation paid to physicians, dentists, nurses and other personnel.

Such a study would shed much needed light on the practical possibilities of organized medical service, especially as some evaluation of quality and of results could accompany the studies of scope and cost.

The National Industrial Conference Board has made one or more studies in this field and the United States Public Health Service has collected important data. These agencies might cooperate with the committee in a further study of industrial health service which would make available additional information, particularly on the economic problems involved. In the study of university health service, it is possible that some organization representing the field of higher education might be interested in cooperating.

This study may be made through the utilization of existing reports supplemented by questionnaires.

**12. Pay Clinics and Group Clinics.**—One important pay clinic that was operated by the Cornell University Medical School has been made the subject of an illuminating study by the Committee on Dispensary Development. The usefulness of this study suggests the value of a study of a considerably larger number of such institutions. It would be useful to know how many there are, and to what extent they have succeeded in reducing the cost of service for persons of moderate means. It would be especially important to determine to what extent these institutions pay adequate compensation to physicians and others employed.

While there are many more "private group clinics" than "pay clinics," apparently less is known regarding their operation. It would be necessary first to define

the term "private group clinics" and then to arrive at a classification of the many different kinds now operating. It would be particularly interesting to know how many, or what proportion, have a person on the staff who gives special attention to the problem of management.

In connection with the study of pay clinics it might be desirable to consider the development of the Health Center movement which has advanced rapidly since the war, and to consider all general clinics where various types of service may be obtained, for the purpose of determining to what extent institutions are coming into existence in the United States in which complete diagnostic and therapeutic treatment is available under one administrative head and to what extent the patient pays for the cost of such service.

This study may be made through the use of questionnaires and field work.

**13. Recent Developments in Services Rendered to Persons Not Indigent by State, Municipal, and County Hospitals.**—This study would reveal the extent to which municipal hospitals serve people of moderate means in both in-patient and out-patient departments. It would also deal with such questions as what per cent of the total population are served by municipal hospitals, how much money is invested in them, how the money is raised and what compensation is paid to the physicians and other personnel.

There has been in recent years a significant growth in county, town and township hospitals, but there seems to be no information available as to the number of states with laws providing for their establishment and no data on the number of institutions which have been built. The Agricultural Department in Washington has made an illuminating study of this field, but it does not go far enough into the economics of the subject.

Gradually, in recent years, state hospitals have become active in serving, not only the indigent, but also patients of moderate means. This is a trend of considerable importance. How far it has developed no one knows. It is obviously important to determine the facts.

The participation of local health departments in the operation of hospitals and clinics might also be considered in connection with this study. The study of municipal health departments practice in one hundred largest cities dealt with the subject, but the schedule of questions on the operation of hospitals and clinics seems to have been unsatisfactory. Information is needed on health department hospitals and clinics not only in the one hundred largest cities, but in all cities having health departments.

This is a questionnaire study.

**14. Visiting Nurse Societies.**—There has been considerable criticism of the work of the visiting nurse, and it has been said that she is sometimes inclined to usurp the functions of the physician. No impartial study has been made of the nature of the services rendered, the relationship now existing between the visiting nurse and the physician, the economic status of the patient and the extent to which the services rendered has developed in various localities in the United States. Such a study might reveal possibilities in the future development of this type of community service.

This study would require field work and the questionnaire. It might be made under the supervision of the Committee on the Grading of Nurses' Schools or with the cooperation of this organization.

**15. School Health Service.**—While excellent studies have been made of school health supervision in the one hundred largest cities of the United States by the American Public Health Association and the United States Public Health Service, and in eighty-six smaller cities by the American Child Health Association, these do not deal with the problem of cost nor with the subject of compensation paid to those employed. In certain rural communities significant experiments have been made in extending the scope of school health work to curative measures, but to what extent

\* This is the third part of Outline of Studies on "Cost of Medical Care." Parts I and II were printed in the July and August issues.



this type of work has developed no one appears to know.

Special studies might be made of school health service which would include the subjects suggested above; or a special effort might be made to have these subjects dealt with when later investigations of municipal health department practice and studies of rural health work are conducted.

16. *The Extent of Private Medical Service on a Yearly Basis.*—Reports have come into print of a few isolated instances in which single patients or groups of patients have employed individual practitioners, on a yearly basis, to supervise their health and treat sickness when necessary. A systematic study in this field might show that greater developments have taken place than have become generally known.

A writer in the *Boston Medical and Surgical Journal* has suggested that a community of 900 families might advantageously be provided with service on a yearly basis by the employment of three physicians at \$8000 per year with an expense budget of \$11,000, making a total of \$35,000. He estimated that 100 families might properly pay \$75 a year, 300 families \$50 per year, and 500 families \$25 per year. Thus the combined income from these sources would equal the total expense. There is a possibility that some time in the future a small community might be persuaded to inaugurate a system of community medical service on the general basis suggested above. A demonstration of this kind would be most illuminating.

The questionnaire method and field work might both be required in conducting this study.

17. *Existing Types of Health Insurance in the United States.*—The scope and cost of protection provided by life insurance companies, mutual benefit associations, fraternal orders and labor unions would be dealt with in this study. Special attention might be given to the subject of group health insurance.

This study might be made in connection with a study of labor legislation in the United States, which is being planned by the Social Science Research Council.

## TWENTY-FIVE YEARS AGO \*

### EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume 1, No. 11, September, 1903

From some editorial notes:

Initial Publication.—A number of papers read at Santa Barbara have appeared in other publications without the consent of the Publication Committee, or have been read before county society meetings. This action on the part of authors is, to say the least, scarcely treating the committee with the courtesy it has a right to expect. . . .

. . . Medical Societies and Public Press.—An admirable idea seems to have been born into the world by the New Castle County Medical Society of Delaware. It is no less than a plan for presenting things medical to the public in a truly ethical and professional manner. Statements which it may be desired to have placed before the public in the lay press are to be prepared and signed by a "press committee," and thus the personal advertising of the author prevented. . . .

. . . Secretaries Should Assist.—Another appeal must be made to the secretaries of county societies to send in for publication in the state journal abstract reports of the proceedings of their meetings, and personal mention of their members. . . .

. . . Santa Clara Resolutions.—The Board of Medical Examiners stands between the public and the charlatan, and is the only protection given the public by the state against the unscrupulous greed, fraud and

dishonesty of the quack and the "healer." Either an attack upon the board is justified, or it is not; if the former, then action cannot be taken too quickly; if the latter, then every reputable physician of the state should come to the support of the board and see to it that the law is carried out. . . .

. . . Final Judges of Success.—Who is the final judge of the success or failure of a given surgical procedure? This question has been suggested by a discussion at a recent meeting of a medical society. In this discussion the physicians spoke on the pathological side of the question. Admitting the improvement of the patient after the operation, they asked if it were due really to the operation that had been done, and if it were due to this, did the success come in accordance with the idea on which the operation was based or because of other conditions not taken count of by this idea? . . .

From an article on the Climate of Santa Barbara by C. M. Richter, M. D., San Francisco:

. . . It is quite an easy matter to write an article on climate, or on the climate of a certain locality by enumerating the figures of the different climatic elements, and furnishing comparisons of these figures with those of other localities. However, if one undertakes to scrutinize and to explain in detail the advantages or disadvantages which certain climatic factors in a given locality exercise on people living there, one will find this to be quite another matter. . . .

From an article on Headache as a Symptom by H. Bert. Ellis, M. D., Los Angeles:

. . . I believe that the eye is a factorial element in fully 60 per cent of all headaches, and that it is the chief factor in about 80 per cent of all headaches of the frontotemporal variety. How do we recognize eye headaches? There are several factors to be taken into consideration: First, the occupation of the individual; second, the time of day or night when the headache makes its appearance; third, the location of the discomfort; and, fourth, the character of the pain. . . .

From the Minutes of the San Francisco County Medical Society:

. . . To San Francisco County Medical Society: Your committee on memoriam to the late Dr. Matthew Gardner respectfully reports as follows:

. . . Though the inception of his professional career was as an obscure and comparatively unknown rural physician, he soon rose to eminence and distinction, and even before he had attained the full bloom of middle age he became the chief surgeon of the Hospital Association of the Southern Pacific Company.

The responsibilities of such a position require tact, energy, medical ability and surgical skill, together with executive capacity. Nature seemed to have endowed Doctor Gardner with all these qualities. . . .

W. B. Coffey, Chairman Committee on Resolutions.

From article on Board of Medical Examiners:

. . . To the President and Members of the Santa Clara County Medical Society: After a careful investigation of those matters submitted to it, relative to the suit begun to oust the Board of Medical Examiners of the State of California, your committee appointed at the July meeting to inquire into the causes leading to this action, if any there be, beg leave to report its finding as follows:

From some personal items:

. . . The Lane Course of Lectures at Cooper College, August 24-28, were delivered this year by Dr. Oscar H. Allis of Philadelphia, the general subject being "Fractures and Dislocations." . . .

. . . Dr. Walter B. Coffey, president; Dr. M. Morrison and Doctor McKenzie, vice-presidents; Dr. James T. Dunn, secretary, and Dr. F. K. Ainsworth, treasurer, have been elected the officers of the newly organized Railway Surgeons Association of the Pacific Coast.

\* This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.



## CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, M. D.  
Secretary of the Board

According to reports of Special Agent Carter, Mary Allen, colored midwife, El Centro, on July 25 pleaded guilty to a charge of violation of the Medical Practice Act and was sentenced to serve sixty days in the county jail, sentence being suspended for a period of two years.

According to the San Francisco *Chronicle* of July 31, 1928, Dr. Pearl Josephine Anderson, whose license was revoked by the Board of Medical Examiners at the July meeting, had filed in the Superior Court of San Francisco a petition for a writ of review, contending that the board was without jurisdiction. "She was cited to appear before the board to answer seven charges of unprofessional conduct and was held guilty on one charge of aiding and abetting Clodie Brown, Los Angeles, in practicing medicine without a license."

According to report of Special Agent Carter, Alfred Bach, previously mentioned in this column August and September, 1926, and July, 1927, had induced a couple of nurses to put up \$1000 each and start the Valley Sanitarium at 406 South Curtis Avenue, Alhambra. "We reminded him of his terms in jail in Long Beach, Los Angeles, and Riverside, and informed him that if he wanted free board and room and an opportunity to earn thirty cents a day for another six months on the county road gang, all he had to do was to be found in our district after the first of August. . . . The Valley Sanitarium is closed and a 'For Rent' sign on the premises."

The license of Dr. N. A. Baker of Sacramento to practice medicine was revoked by the State Board of Medical Examiners yesterday. Baker was charged with improper conduct.—*San Francisco Chronicle*, July 11, 1928.

"Three gallons of herbs were brewing on the stove and a pint of whisky was lending strength to A. Basquez, alias Jackson, when Investigator Byrne of the State Medical Board walked into 421 South Figueroa Street, yesterday to arrest the full-blooded Indian for practicing medicine without a license."

On July 12, 1928, Paul Bauer, a naturopath of Sacramento, was found guilty of practicing beyond the scope of his naturopathic license after a formal hearing before the Board of Medical Examiners, and placed on five years' probation.

After being denied an application for a new trial, Dr. Arthur O. Berg, 35-year-old chiropractor, found guilty of second degree murder after he is alleged to have performed an illegal operation upon Page Walden, 15-year-old high school girl, was today sentenced to a term of from five years to life.—*Los Angeles Express*, August 6, 1928.

Dr. Eric Breitung, fifty-one, said to be a former major in the German Army, was held here today for the Mexican Government on a warrant charging embezzlement of \$8500 while head of a sanitation committee in Mexico City (*Los Angeles Record*, August 1, 1928). There is no record of his licensure in California.

Mrs. Clodie Brown, charged with practicing medicine without a license in connection with the operation of her alleged cancer cure, was found guilty by a jury in Municipal Court yesterday within ten minutes after the jury had retired. She will be sentenced today. Mrs. Brown and Dr. Pearl Anderson, the testimony showed, operated the S. J. Bridge Cancer Cure in a downtown theater building. According to

William A. Byrne, investigator for the State Board of Medical Examiners, they applied raw acid to women's breasts in order to hold the women as patients.—*Los Angeles Illustrated Daily News*, June 15, 1918.

The license of Calvin Camp, M. D., was revoked July 11 by the Board of Medical Examiners, based upon the record of his conviction ("News Items," Cal. Bd. Med. Examiners, March, 1928).

According to the San Francisco *Examiner* of August 4, 1928, C. J. Chartier, druggist at 7501 Foothill Boulevard, Oakland, was arrested on a charge of violation of the Medical Practice Act, following the death of a four-year-old girl from diphtheria. The records show that on March 15, 1928, Chartier pleaded guilty to a previous violation of the Medical Practice Act and paid a fine of \$100 ("News Items," Cal. Bd. Med. Examiners, May, 1928).

A formal request for the ousting of Dr. James Compton of Sacramento as a member of the State Board of Chiropractic Examiners was today filed with Governor C. C. Young by Dr. Samuel Howell of Los Angeles, Compton's rival in claiming the board's secretaryship.—*San Francisco Examiner*, July 20, 1928.

According to a United Press dispatch dated Los Angeles, August 6, published in the Marysville *Appeal Democrat* of the same date "The main aim of this year's convention of the National Progressive Chiropractic Association is to add surgery and numerous therapeutics to the chiropractic profession, Dr. Charles H. Wood said in addressing the open session."

Dr. C. L. Davis, chiropractor, with offices at 6262 Van Nuys Boulevard, pleaded guilty to a charge of practicing medicine without a license before Judge H. A. Decker in local municipal court Wednesday morning and was fined \$100. An additional sentence of ninety days in the city jail was suspended by the court, and Doctor Davis was ordered to report once every six months for a period of two years.—*Van Nuys News*, July 20, 1928.

The action of the State Board of Medical Examiners in revoking the license of Frank P. Young was sustained yesterday by the Appellate Court in a decision written by Justice Houser, while the board's order was reversed in the cases of Dr. Philip Dymont and Dr. Eugene Rinaldo. The court held that the licenses should be restored in the Dymont and Rinaldo cases because they were revoked on hearsay testimony, with the legal result that the board lacked jurisdiction to make any such order. In the Young case it was held the evidence was sufficient to sustain.—*Los Angeles Times*, July 4, 1928.

Frederick W. Gehrig, D. C., drugless practitioner of Oakland, following a hearing before the Board of Medical Examiners, July 10, 1928, was found guilty of practicing beyond the scope of his drugless practitioner license and placed on probation for a period of five years.

The license of Calvin L. Gregory, M. D., Redwood City, was revoked July 11, 1928, following a hearing before the Board of Medical Examiners based upon charges of an alleged illegal operation.

Dr. J. A. Hadley, whose writ of certiorari was denied by the Supreme Court in June, and who has been practicing since that time, according to a statement made by District Attorney Metzler, was today notified by Inspector Davidson, representative of the State Medical Board, to cease practice at once or summary action would be taken by the board. Doctor Hadley's license to practice medicine in the state of California was revoked by the State Medical Board after a hearing on the charges in connection with the Louise Baxendale case, on account of whose death



Doctor Hadley was tried for murder and acquitted.—*Eureka Times*, July 19, 1928.

Dr. F. W. Harms, a physician of Galt, is charged with violating the State Poison Act by the sale of narcotics in a complaint issued by District Attorney Neil R. McAllister today at the request of State Narcotic Agent George H. Ferguson. The narcotic agent alleges that the Galt physician last night made a sale of narcotics.—*Sacramento Bee*, July 5, 1928.

The Initiative Measure permitting drugless practitioners in public hospitals failed to qualify for the November election ballot, as the time expired today because of lack of the necessary number of signatures. Only 3620 signatures appeared on the petition, while 91,529 were needed, according to Charles J. Haggerty, election statistician of the Secretary of State's office.—*Fresno Bee*, August 8, 1928.

"Dr." Howard A. Kelley, Pasadena dishwasher, who was tripped up by investigators of the State Medical Board when he forgot what state Mayo Brothers' famous hospital was located in, was given a stiff dose of medicine in the form of ninety days when he pleaded guilty before Municipal Judge F. F. Gualano today to a charge of practicing medicine without a license. Evidence disclosed that Kelley told patients who called at his office, 272 North Marengo Street, Pasadena, that he learned medicine with the Mayo Brothers at Rochester, New York. When medical investigators called upon him to determine when the Mayos moved their hospital from Minnesota, it was stated that they discovered that Mr. Kelley's knowledge of medicine was gleaned from books while dishwashing in a Pasadena restaurant.—*Los Angeles Express*, August 4, 1928. (Previous mention, "News Items," Cal. Bd. Med. Examiners, July, 1928.)

Following a formal hearing before the Board of Medical Examiners on July 11, 1928, the license of John G. Lenz, M. D., was revoked.

According to report of our Investigation Department, Molly G. Neal, colored midwife, El Centro, California, pleaded guilty July 25 to a charge of violation of the Medical Practice Act and was sentenced to serve sixty days in the county jail, said sentence being suspended for two years.

Dr. G. Carl H. McPheeters of Fresno, formerly a practicing physician in Riverside, has been restored to medical practice by Superior Judge Charles R. Barnard in the Superior Court of Fresno County. The court set aside the action of the State Board of Medical Examiners, which revoked McPheeters' license June 28, 1927, when it found that the doctor was guilty of revealing professional secrets in connection with the death here two years ago of his former office girl. Doctor McPheeters appealed to the courts from the ruling of the Board of Medical Examiners on the ground that the board did not have sufficient evidence at all to support its rulings in his case and that the law which gives the Board of Medical Examiners its executive authority is unconstitutional.—*Riverside Press*, July 16, 1928.

Charged with violating the State Pharmacy Laws relating to narcotics, Dr. Carroll S. Middleton and wife of Venice, the latter mother of six children and accused of being a drug addict, yesterday were arrested at their home here at 15 Thornton Avenue. Doctor Middleton, who is a registered physician of the state but who has retired from practice, is charged with prescribing narcotics for his wife, an alleged habitual user of drugs, and his wife is held for violation of the State Pharmacy Laws on the ground of possession of narcotics.—*Venice Vanguard*, August 2, 1928.

The Canadian Government yesterday upheld the judgment of the Immigration Court in Calgary handed down on June 8, and "Dr." Orlando Edgar Miller, self-styled psychologist, will be turned over to the United States officers and brought to San Francisco to stand trial on a charge of using the mails to defraud. The deportation was ordered on the counts: That he was an undesirable alien, being under indictment on a criminal charge in his own country, and that he entered Canada by fraud, claiming to be a tourist, and then undertaking a lecture tour for profit.—*San Francisco Chronicle*, June 17, 1928. (Previous entries, "News Items," Cal. Bd. Med. Examiners, June, October, November, 1926; March, 1927; March, 1928.)

Proceedings to remove Dr. Edwin Mills, alias Dr. Lester Parker, accused of impersonating a government officer, to San Francisco for hearing will be started today before Acting United States Commissioner Turney. Doctor Mills has long been sought by government agents for posing as a Navy surgeon and thus inducing many persons to cash asserted fake checks. Indictments have been returned against him at San Francisco and San Antonio, Texas; and Seattle authorities who caused his arrest also want him on charges of passing bad checks in that city while appearing as a Navy officer.—*Los Angeles Times*, July 30, 1928. ("News Items," Cal. Bd. Med. Examiners, July, 1928.)

Fred V. Mohn, M. D., following a hearing before the Board of Medical Examiners on a charge of aiding and abetting an unlicensed practitioner, was found guilty July 12, 1928, and was placed on probation for a period of five years.

The attention of the Board of Medical Examiners was recently called to an individual by the name of Hans Oftedal, reported as recently practicing in Montague, California, without the formality of obtaining a license under the laws of this state. He is reported to claim graduation from the University of Oregon Medical School and licenses to practice medicine and surgery in Minnesota, Oregon, and California; however, none of these statements are verified by authorities. He is reported to be about fifty-eight years of age, weight about 210, heavy gray hair, usually worn long on the back of the neck, gray or blue eyes, and we are interested in his present whereabouts.

Dr. Allen Peek, well-known local physician, is to appear before Judge Malvern Dimmick Monday in a citation for contempt of court, issued after Doctor Peek is alleged to have failed to appear before the State Labor Commission representative in Santa Barbara on a wage charge filed by a woman there.—*Ventura Star*, June 16, 1928. (Previous entry, "News Items," Cal. Bd. Med. Examiners, May, 1928.)

Dr. Percy Purviance, head of the Berkeley Chiropractic College, 2168 Shattuck Avenue, was found not guilty today by Judge Oliver Youngs, Jr., on a charge brought against him by the State Board of Chiropractic Examiners, of using the initials "D. C." (Chiropractic Doctor). . . . The hearing today was one of a series of legal complications involving the Berkeley Chiropractic College.—*Oakland Tribune*, June 21, 1928.

Holding there was insufficient evidence to warrant the action of the State Board of Medical Examiners in finding Dr. Thomas J. Randall of this city guilty of unethical advertising, Superior Judge Walter S. Gates today annulled the board's action in placing the physician on five years' probation and restricting the wording of his advertisement.—*Los Angeles Herald*, July 31, 1928.



# CALIFORNIA AND WESTERN MEDICINE

*Owned and Published Monthly by the California Medical Association*

1016 BALBOA BUILDING, 593 MARKET STREET, SAN FRANCISCO

ACCREDITED REPRESENTATIVE OF THE CALIFORNIA, NEVADA AND UTAH MEDICAL ASSOCIATIONS

VOLUME XXIX  
NUMBER 3

SEPTEMBER • 1928

50 CENTS A COPY  
\$5.00 A YEAR

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IF medicine had been born a complete science; if the law of variation could be suspended, it is conceivable that the sum and total of human knowledge could be encompassed in a single volume, the science of medicine could consider its conquests complete and its responsibilities for further research ended.

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# CALIFORNIA AND WESTERN MEDICINE

VOLUME XXIX

OCTOBER, 1928

No. 4

## ROCKY MOUNTAIN SPOTTED FEVER, TULAREMIA, AND RODENT PLAGUE\*

BRIEF DISCUSSION OF THESE SPECIFIC DISEASES  
IN THEIR BEARING ON PUBLIC HEALTH  
IN WESTERN STATES

By J. C. PERRY, M. D.  
San Francisco

THE particular diseases of Rocky Mountain spotted fever, tularemia, and rodent plague have been selected for brief discussion. Each is a disease occurring primarily or principally in the Western states, and one, plague in ground squirrels, exists only in one state.

These three diseases have a direct bearing on the public health of the communities in which they are found. The purpose of this paper will be to stress this phase and give only such general data as may be necessary for a connected and intelligent presentation of the subject.

### ROCKY MOUNTAIN SPOTTED FEVER

The first of these diseases to be considered is Rocky Mountain spotted fever, because it constitutes a definite public health problem in at least three Western states.

*Historical.*—Although this disease has been known in Idaho and Montana since 1873, it was not until 1899 that it began to attract marked attention—after the presentation of a paper by Dr. C. E. Maxey of Boise, Idaho.

Rocky Mountain spotted fever has long been a blight on the Bitter Root Valley in Montana, where the most virulent type occurs, and the Montana State Board of Health since 1902 has been actively engaged in trying to solve the problem of transmission and prevention of this disease. That board sought outside aid and secured the services of Doctors L. B. Willson and W. M. Chowning, who carried out the first serious laboratory study of the disease. They suggested, in their report of 1902, the rôle of the ground squirrel (*Citellus Columbianus*) and the tick (*Dermacentor Andersoni*) as host and transmitter, respectively.

Following these investigations came others by Ashburn, Craig and Keiffer of the Army, and several officers of the United States Public Health Service (one of whom was McClintic, who contracted the disease and died). The most note-

worthy among these early investigators are the martyred Rickerts and his associates. They demonstrated: that infected ticks exist in nature and that by their bites the disease could be reproduced in guinea-pigs; that ticks infected by feeding on infected animals may transmit the infection to healthy susceptible animals; and that infected female ticks transmit the disease to their young through their eggs.

*Geographical Distribution.*—Since the disease exists in ticks (*Dermacentor Andersoni*) in nature, Rocky Mountain spotted fever may occur in any areas where the dermacentor is found. However, this need not be a general distribution, but only in some specific portion of such an area; as the disease exists in definite foci, and the virulence of infection may vary decidedly even in adjacent areas.

The infested regions include the northern part of the Rocky Mountain region in the United States, and the river valleys and sagebrush plains to the west, namely, western portion of North Dakota and South Dakota, almost the entire state of Idaho, Montana, Wyoming and Colorado, the northern portion of New Mexico, Utah and Nevada, eastern half of Washington and Oregon, and the northeastern corner of California.

*Laboratory Investigations.*—Spencer and Parker of the United States Public Health Service, who were detailed to work with state health authorities, in recent years have secured some valuable data regarding the infectivity of ticks and the action of the virus under different conditions.

These investigators found that the virus of spotted fever survives in the tissue of infected ticks through extremely cold weather, but that the virus was apparently attenuated. Experiments were carried out with so-called drag ticks, which are unfed, wintered ticks in nature, and also with ticks infected in the laboratory and placed outdoors for the winter months.

It was established that when guinea-pigs were inoculated with these ticks, spotted fever was not produced, but an immunity was conferred in a large percentage of the guinea-pigs. However, when other wintered ticks of the same lot were incubated for two days, or were allowed to feed on animals for forty-eight hours, they produced the fever when fed on or inoculated into guinea-pigs.

In this connection it may be stated that animals are considered immune when spotted fever does not develop, following an injection of one cubic centimeter of citrated heart's blood of a guinea-

\* From the United States Public Health Service, San Francisco. By J. C. Perry, Senior Surgeon, U. S. P. H. S.

\* Read before the California Medical Association, in General Meeting, at the Fifty-Seventh Annual Session, April 30 to May 3, 1928.

pig at the height of the infection, but does develop in control animals.

The following table, taken from a report by Spencer and Parker, showing the result of tests with these (drag) ticks proves of interest:

#### *Drag Ticks Infectivity Tests*

|                                                                                                                                                                  |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| (a) By direct inoculation:                                                                                                                                       |     |
| Total tests completed.....                                                                                                                                       | 101 |
| Tests resulting in spotted fever .....                                                                                                                           | 0   |
| Tests resulting in immunity.....                                                                                                                                 | 29  |
| Tests negative.....                                                                                                                                              | 72  |
| (b) By combined feeding and inoculation (including tests in which the pig sickened with spotted fever after feeding alone, inoculation therefore being omitted): |     |
| Total tests completed.....                                                                                                                                       | 65  |
| Tests resulting in spotted fever after feeding                                                                                                                   | 10  |
| Tests resulting in spotted fever after inoculation, ticks having previously fed.....                                                                             | 10  |
| Tests showing immunity from feeding and inoculation .....                                                                                                        | 8   |
| Tests negative from feeding and inoculation                                                                                                                      | 37  |

The foregoing is particularly interesting in showing that infected, unfed, wintered ticks produce immunity, and that in order to convey the fever, reactivation of the virus either by incubation of ticks or feeding is necessary. The factors operative in increasing the virulence are not clearly known. However, the feeding in the majority of instances must be from ten to forty-eight hours. This need for prolonged feeding may furnish an explanation of the comparatively small number of human cases which occur in even badly infected locations, as no doubt many ticks that attach themselves to man are removed before reactivation has taken place.

It was also noted that virus of infected ticks to which 0.5 per cent of phenol was added, when injected into guinea-pigs, did not produce spotted fever, but did bring about relative degrees of immunity.

Taking cognizance of these facts, Spencer and Parker have prepared a vaccine from infected ticks; and its protective value having been demonstrated in guinea-pigs, rabbits and monkeys, its use has been extended to man.

*Relation to Public Health in the Community.*—Spotted fever has long constituted a public health problem in Montana and Idaho and may become so in other territory where infection exists, with the occurrence of occasional human cases.

A large number of small rodents, particularly ground squirrels (*Citellus Columbianus*) chipmunks, rock squirrels and woodchucks, are susceptible, and these animals constitute a permanent reservoir of infection in districts where the disease exists. However, there is no evidence that the infection is highly fatal among them. Ticks (*Dermacentor Andersoni*) perpetuate the infection by feeding on these rodents; carry the infection throughout their life cycle, and transmit it through their eggs to the next generation.

When consideration is given to these facts the stupendous task that has confronted health authorities can be visualized. Until recently the preventive measures have been directed against these

small rodents and ticks through such procedures as clearing away brush, burning over the area, destruction of small rodents, dipping of domestic animals and sheep grazing. These methods have produced no appreciable reduction of human cases; in fact, such measures can never be effective on account of the large areas where infection exists and of the prohibitive cost of such undertakings.

*Vaccination.*—The control of this disease can probably be effected if a protective vaccine in sufficient quantity becomes available for the vaccination of those persons, who from their occupation, must expose themselves in infected areas. The following statistics available from use of a vaccine prepared by Spencer and Parker are interesting.

In 1925 thirty-four persons were vaccinated, chiefly laboratory employees and field workers whose duties constantly exposed them to infection, and only one case of spotted fever, milder in type, developed, the patient going on to recovery.

In 1926 and 1927 some 1872 persons living in Bitter Root Valley, where the most virulent type exists, were vaccinated, and no case of fever occurred among them. In a nonvaccinated group, fourteen cases occurred, with twelve deaths. In 1927, among a group of 319 sheep herders in Idaho, 115 were vaccinated. There were nine cases among the nonvaccinated and two among the vaccinated (both of whom recovered). In 1926, in the same group, thirteen cases occurred among the 221 not vaccinated, and no case among the ninety-four vaccinated.

In a group of 300 nonimmune sheep herders in Wyoming ninety-five were vaccinated, with no outbreak of the disease, whereas there were seven cases of spotted fever among the nonvaccinated.

*Comment.*—While these statistics are small and the results obtained should not be interpreted as conclusive evidence, they are at the same time highly suggestive that a protective measure has been found against this disease. Furthermore five mild infections, with prompt recovery, have occurred in laboratory workers who had been vaccinated, whereas previous to the use of vaccine the five laboratory infections which occurred were fatal. This indicates that in event absolute protection is not afforded, the virulence of the infection is modified to the extent that cases developing are mild in type.

#### TULAREMIA

Tularemia should be of sufficient interest to the physicians of California to justify its mention before this association, because the causative micro-organism was first discovered in California, and the name Tularemia has been derived from Tulare County, in this state.

*Historical.*—McCoy and Chapin discovered the micro-organism of the disease in 1911, in ground squirrels from Tulare County, California, while making routine examination of ground squirrels from several counties, to determine if bubonic plague infection existed among them. Some of these animals presented gross pathological lesions resembling to some extent those of plague, but



animal inoculations and bacteriological examinations proved this was a new infection, and for want of a better name they called it "Plague-like Disease." Since that time the disease has been found in ground squirrels in several other localities.

Francis in his investigation of "Deer-Fly Fever" in Utah (1919), found that the micro-organism isolated from human cases, through inoculation of guinea-pigs with blood from patients, was identical with that previously described by McCoy.

Taking cognizance of the fact that this disease in rodents was first found in those from Tulare County, Francis named the disease tularemia and the causative micro-organism *Bacterium tularense*.

*Distribution in Nature.*—(1) Ground squirrels; (2) wild rabbits and hares; (3) wild rats; and (4) wild mice, have been found infected with *Bacterium tularense*.

While tularemia has been found in all the rodents specified, the wild rabbits and hares constitute the great reservoir of infection. Wherry and Lamb isolated *Bacterium tularense* from cottontail rabbits found dead in southern Indiana. Francis cultured tularense from guinea-pigs which had been inoculated with the spleens of seventeen jack rabbits shot or found dead in Utah, the spleen of a snowshoe rabbit found sick in Montana, and the livers of ten cottontail rabbits bought in the Washington, D. C., market. Numerous observers have reported sick and dead rabbits in communities where human cases of tularemia were occurring.

Dieter and Rhodes in 1925 cultured three strains of *Bacterium tularense* from guinea-pigs which had been inoculated with tissues of rats which had been trapped in the city of Los Angeles. These observers were engaged at the time in examining rats for plague.

The writer of this article (Perry), in September, 1927, isolated *Bacterium tularense* from wild meadow mice (*Microtus Californicus Aestuariensis*) by guinea-pig inoculation. These mice were obtained from a locality in Contra Costa County, California, where an epidemic disease affecting mice was prevailing. Large numbers of sick and dead mice were noted. A recheck over this and adjacent areas where infestation had been heavy, showed very few mice remaining, so that it may be safely inferred that the tularemia outbreak among the mice caused a large mortality. This is the first and only record of the infection having been found in wild mice.

While tularemia first attracted attention in the Western states, particularly Utah, as "deer fly fever," the disease is now found widely scattered and has been reported in thirty-nine states and the District of Columbia, as well as in Japan. The nine states from which cases of tularemia have not been reported are Maine, New Hampshire, Vermont, Connecticut, Massachusetts, Rhode Island, Delaware, Wisconsin, and Washington.

*Mode of Transmission.*—Tularemia is transmitted to animals by blood-sucking insects: lice, flies, and ticks. The last may be considered as a permanent reservoir of infection. They carry the

infection over winter, harbor it throughout life and transmit it to the next generation through their eggs.

Transmission to man from animals occurs: (1) by bite of the horsefly (*Chrysops discalis*); (2) by bite of the wood tick; and (3) by contamination of hands or conjunctival sac with portions of the internal organs or with the body fluids of infected rabbits, ticks or flies.

Any of the above agents may be operative, but most of the human cases of tularemia are caused by the specific acts of the individuals by which they inoculate themselves.

In connection with the foregoing the following is taken from an analysis in a recent article, made by Francis, concerning the source of infection in 292 human cases. That analysis showed that 23 of the patients had been fly-bitten, 44 had been tick-bitten, and 225 had dissected or dressed rabbits.

*Occupation.*—The largest number of cases occur among farmers and their families; the second group in frequency are market men, housewives, and cooks; hunters occupy third place; and laboratory workers constitute a large group.

It is not the purpose of this article to discuss tularemia fully, but only to present such salient points as should be taken into consideration from a public health standpoint. Therefore types of the disease, symptoms, diagnosis, including bacteriology and pathology will be omitted.

Let it suffice to say that physicians who bear in mind the following tetrad will seldom fail to correctly diagnose the disease: (1) A history of having dressed or dissected a wild rabbit or of having been fly or tick-bitten. (2) A primary lesion of the skin in form of a papule followed by a persistent ulcer, or a primary conjunctivitis followed by an ulcer of the conjunctiva. (3) A persistent enlargement in the lymphatic glands draining the region of the ulcer. (4) A fever of two or three weeks' duration.

*Relation to Public Health of the Community.*—When consideration is given to the fact that only a few human cases of tularemia have been reported in California, although there is infection in wild rabbits, ground squirrels and wild mice, it seems evident that tularemia does not constitute a public health problem in this state. In other localities, particularly Utah and Montana, specific areas may demand the attention of health officers in rural communities. Tularemia is certainly of economic importance because farmers become infected at a season when their labors are most required, and when the disease is acquired the person afflicted is incapacitated for months on account of the slow convalescence.

No protective vaccine has been perfected. The weapon of defense is education, and district health officers can render valuable service by presenting to physicians and to the public the facts concerning the disease, and the means by which it is contracted. Simple precautions are all that are necessary; such as wearing rubber gloves when dressing or handling suspected animals, avoidance of soiling hands with body fluids of rabbits, ticks,



and flies, and prevention of bites from flies and ticks in regions in which sickness is occurring among wild rodents.

#### PLAGUE IN GROUND SQUIRRELS IN CALIFORNIA

Of particular interest to health officials in California is the existence of plague in ground squirrels over a large area in the state. This constitutes the only focus of plague in the United States, and under the present scheme of operations it will remain indefinitely as a potential source of danger and a grave menace to the community in which it exists.

Plague in ground squirrels was first bacteriologically proven in 1908, but investigations carried out at that time showed that the disease existed in these rodents prior to the date of determination; and, furthermore, reports indicated that ground squirrels in the East Bay counties died from some epizootic as early as 1900.

A campaign was started in Alameda and Contra Costa counties in the spring of 1909 by the Public Health Service, working in cooperation with state and local authorities, for the purpose of determining: (a) the extent of infection, and (b) the eradication of determined foci of infection by intensive poisoning operations against the squirrels. This work was extended to include the following ten counties: Alameda, Contra Costa, Merced, Monterey, San Benito, San Joaquin, Santa Clara, Santa Cruz, San Mateo, and Stanislaus, and was continued until 1917. Plague foci in ground squirrels were proven in all these counties.

In 1920 it was possible to carry out collection and examination of squirrels in seven of these original counties, and plague infection was found in each.

*Present Conditions.*—Plague undoubtedly exists in ground squirrels over a wide area, and because the work it was possible to accomplish from 1909 to 1917 under large appropriations, and when the danger was fresh in the minds of the people, did not eradicate but only controlled the disease, the future outlook is not bright.

In 1921 there were two human cases of plague in San Benito County, and plague squirrels were demonstrated in 1926. Both human and rodent plague was found in Alameda and Santa Cruz counties in 1922, and one human case was contracted in Monterey County in 1923.

In 1924 there occurred an exacerbation of plague in ground squirrels and there was unusual mortality in squirrels in San Benito and Monterey counties and a virulent outbreak of rodent plague in San Luis Obispo County. In October and November of 1924, a violent form of pneumonic plague was discovered in Los Angeles.

Shooting operations were carried out by the California State Department of Health in 1927, although only two hunters were employed and the number of squirrels shot and examined was relatively small. Plague foci in ground squirrels were shown to exist in Contra Costa, Santa Cruz, and Monterey counties. If sufficient appropriations had been available for placing on duty a

large number of hunters, it is believed plague would have been demonstrated to be present in other counties.

In 1927 one human case of plague occurred in Contra Costa County and another case occurred in February, 1928, from handling infected squirrels trapped within the city limits of Santa Cruz.

*Incidence of Infection.*—As in rats, the percentage of infected squirrels to the total is low, but in proven foci of infection it may be high, as will be later shown for San Luis Obispo County in 1924.

In 1902 a total of 19,507 squirrels were examined in the laboratory, and 108 were found plague-infected. This gives a percentage of infection of .55. This indicates results of general shooting operations over large areas to determine foci of infection.

Operations around infected centers yield a much higher incidence, and the following are cited in illustration: 407 squirrels obtained within a radius of two miles around a focus in Contra Costa County showed 2 per cent infected; the examination of 259 squirrels shot within a radius of one mile of a center where a human case occurred, gave 3.5 per cent infected; in San Luis Obispo County the examination of a limited number of squirrels shot at a point where four dead squirrels had been picked up and proven positive yielded the enormously high percentage of 19.

The incidence of infection in the ground squirrels shot and examined by the State Department of Health in 1927 was .47.

*Existing Danger.*—As long as there are foci of plague infection there is danger to the communities in which they exist and to other places by extension of infection from those foci.

The gravest danger is that of rural plague becoming urban, through the transmission of plague to the rats of populated centers from the ground squirrels in the same environment. These rodents come together in the outskirts of towns and have been caught from the same burrow.

A second danger is that of human plague from contact with infected squirrels. A number of such cases have occurred, and nearly every year there are one or more victims. While in the majority of such instances there has not been any spread of the disease from the affected individual, it is not safe to assume that this will be the result, since such human cases may be the starting point of a serious outbreak, as evidenced by the occurrence of fourteen cases of pneumonic plague in Oakland during 1919, and of some thirty-two cases of pneumonic plague in the Los Angeles outbreak in 1924.

From the nature of the outbreak of plague in Los Angeles, which was mainly pneumonic, the type generally transmitted by marmots, and the determination of plague-infected squirrels within the city limits in the areas adjacent to where the human cases occurred, it is quite probable that the infection in that city had its origin in infected



ground squirrels transmitting plague infection to rats.

*Remedial Measures.*—These measures can be discussed under (a) eradicated measures and (b) control measures.

If it were possible to exterminate the ground squirrels the plague infection would be eradicated. However, when thought is given to the degree of infestation it will be realized that the extermination of these rodents is an impossible task. Certainly under the procedures now being carried on, the extermination of squirrels or the eradication of plague infection in them will not be accomplished.

The only method of eradication of plague among squirrels that appears to the writer, is an intensive shooting campaign over large areas for the purpose of determining foci of infection, and then intensive work for the extermination of the squirrels at and around these foci of infection. Such a campaign would be expensive and necessitate much larger appropriations than are now being made, but such expenditures, even if large, would be economy in the end and would accomplish results impossible to obtain under past or present procedures. Under this plan it is believed that plague infection could be eradicated. The destruction of squirrels in noninfected areas would resolve itself into an economic problem.

The State Department of Health is the logical agency to carry out these operations, and sufficient appropriations should be allowed that organization to permit of an extensive shooting campaign to determine foci or plague among ground squirrels. A start in that direction was made last year, and it is understood that a similar campaign will be carried out this year. However, sufficient funds should be made available to enable the prosecution of intensive work.

After the determination of foci or plague infection it might be possible, through the Horticultural Commissioners of the counties, to have enacted intensive eradicated measures around such determined foci.

If the ideal is unobtainable, what control measures can be employed to effect a reasonable degree of safety? This objective can be obtained by local intensive operations for the purpose of bringing about squirrel-free zones around centers of population, especially around the cities. Furthermore, this measure should be carried out around towns, villages, schoolhouses, and rural dwellings. The work carried out at the present time is localized control and not eradicated.

*Plague in Urban Communities.*—This discussion would be incomplete without some reference to plague in cities and towns, as remedial measures which are different from those employed against ground squirrels would have to be directed against rats.

It is of paramount importance in cities infected or that have been infected with plague to institute those measures which experience has taught are essential either in the eradication of plague, or for placing such communities in a sanitary condition from a plague standpoint that would render them

less infectible, and to facilitate the eradication of the disease if lodgement should occur.

The only efficient measure is the rat-proofing of buildings and the destruction of rat harborages. This cannot be too strongly emphasized, and all seaport cities should have such ordinances in effect; and, furthermore, these ordinances should be rigorously enforced by the health departments of such communities.

Cities that have been infected with plague must be regarded as liable to reinfection unless proper rat-proofing of buildings has been carried out.

The second measure that should be practiced in cities that have been infected with plague is a continuous rat survey, and this should be sufficiently extensive to give a fair cross-section of the rodent population. This will prove of marked value from both a public health and economic standpoint. It would give early information of any foci of infection and permit of prompt eradication before the disease had spread. The economy that would result from this practice can be easily visualized.

The task is stupendous, but as the work prosecuted against ground squirrels, with varying degrees of intensity for nineteen years, has not eradicated the infection in many of the counties in which it has been proven, it seems imperative that more vigorous action should be taken to eliminate this potential danger.

76 New Montgomery Street.

## EMOTIONAL INFLUENCE UPON THE GASTRO-INTESTINAL TRACT\*

By HOWARD E. RUGGLES, M. D.  
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DISCUSSION by Raymond G. Taylor, M. D., Los Angeles; Orrin S. Cook, M. D., Sacramento; Robert R. Newell, M. D., San Francisco.

EVIDENCE of the close connection between the nervous system and the gastro-intestinal tract is always before us. Sinking feelings upon the receipt of bad news; the sudden epigastric cramp just before an automobile accident, and the often quoted relaxation of sphincters at moments of great fear are known to everyone. The organic changes associated with these states have not been demonstrated roentgenologically. But the intestine is equally responsive to emotional stimuli of lesser degree, and the signs of their presence are constantly before us upon the fluoroscopic screen.

### CONFIRMATORY HISTORIES

The chairman's address before the medical section of the American Medical Association last year dealt with this subject, and he mentioned the following case:

An apparently normal business man developed an obstruction in his sigmoid during an emotional crisis where he had to sacrifice either his principles or his position. Opaque enema showed a complete block, and the patient only escaped

\* Read before the Radiology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



laparotomy because his physician was wise enough to repeat the examination several times.

Within the year a woman was sent to operation because of an irregular defect in the ascending colon, seen on different days, to find the area perfectly normal when the abdomen was opened. She was an extremely nervous individual with a long surgical history, and insufficient emphasis had been put on that side of the story.

Recently I was much impressed by the extreme degree of spasm in the sigmoid and descending colon of a woman surgeon. It took fifteen minutes to outline the colon by enema, owing to a marked general constriction. I ascribed the condition to apprehension over the possibility of a malignancy, as she had just had two cases of carcinoma of the colon in particularly important patients. The fact was that she was suppressing a blow to her pride. The family of one patient had called in another surgeon, although she had always cared for them previously. The effort to keep the hurt out of her consciousness tied her colon in a knot.

A patient with a rather atonic stomach was returned to her dressing room for a few minutes to permit another examination to be completed. She became enraged at this procedure and when she again appeared behind the screen her stomach had lifted, contracted to half its former size and showed rapid, vigorous peristalsis. The stomach subsided with her anger and soon returned to its normal state.

#### THERAPEUTIC APPLICATION

There is a practical application of mental control of the pylorus. Frequently when the duodenal cap is slow in appearing, a short conversation with the patient on the subject of favorite foods will produce a prompt relaxation of the pyloric sphincter.

At least one-third of our gastro-intestinal patients have no organic lesion, yet their symptoms are sufficiently important to send them to a physician. If their nervous systems are moderately stable and the inciting factor is removed, they return to normal health in time. But that great collection of unfortunates with a substandard mental and nervous equipment or those whose environment produces a chronic emotional strain, we have with us always. You have all seen patients who go along comfortably but return with another duodenal ulcer as soon as an additional load is thrown upon them in the way of worry, fear, or overwork. It is at times difficult, in the brief acquaintance we have with these patients, to dig out the causative factor, but it is time well spent to do so. Where we find unusual spasm or stasis present the nervous background should always be investigated. It is of the greatest importance to repeat the roentgen examinations on such individuals. The most characteristic finding with them is the variability of the picture from hour to hour and from day to day.

Fifteen years ago Cannon pointed out the profound changes which fear, pain, and rage produce in laboratory animals—the relaxation in stomach,

small intestine and colon, dilatation of the pupils, acceleration of the heart, pallor, increase in blood sugar, and the other sympathetic nerve effects. His ingenious explanation classes them as reflexes and assumes that their purpose is to assist the individual in times of conflict. In our present existence the conflicts are no longer physical but mental. However, they call for the same visceral responses which may be marked in emotional or hypersensitive individuals.

#### DISTRIBUTION OF INVOLUNTARY NERVOUS SYSTEM

The distribution of the involuntary nervous system is of considerable interest. The esophagus and cardiac end of the stomach are supplied entirely from the craniosacral division. The sympathetic first appears in the pyloric end of the stomach and both systems continue to the ileocecal region. Practically all the large intestine is innervated by the sympathetic. The lower sigmoid and rectum have both. In general the sympathetic is inhibitory and the craniosacral motor in effect, but variations from the rule are frequent. The areas of particular importance, from our standpoint, are those where the two sources of supply overlap—about the pylorus, in the ileocecal region and the sigmoid. Except for the descending colon the sections supplied by one system alone show little evidence of emotional influence. My impression is that men are more apt to show mental strain about the pylorus, and women in the colon. Brunswick investigated the effects of emotional stimuli on the stomachs and rectums of a small series of medical students. He found in general that decreased tone accompanied unpleasant emotional states and pleasant ones caused an increase. Disgust was an exception, producing an increase. Study of the gastro-intestinal tracts of a series of mental cases gave interesting results. In actively hallucinating paranoid schizophrenics, where the most intense emotions are experienced which continue for long periods of time, stomachs are atonic and colons slow in emptying, due to sympathetic stimulation. Of all portions of the tract the colon is most susceptible to sympathetic control.

It is of interest in this connection to review the question of ulcer. No matter what one may feel to be the cause of ulcer, it cannot be denied that there is a great nervous element in many of them. The tendency to recurrence under stress—the association of ulcer with a fairly characteristic type of personality and the chronicity of the lesions when the emotional background cannot be controlled are suggestive. Recently Stahnke, by stimulation of the vagus, has been able to demonstrate a neurogenic regulation of the form and position of the stomach in dogs. Chronic stimulation produced defects in the gastric mucosa and alterations in acidity.

Wilkie, in Great Britain, found duodenal ulcer in men three times more common than in women. Nolke's figures in Germany are four to one, and in our series of nine thousand gastro-intestinal cases, covering six years, there are twelve hundred ulcers, also at a ratio of four to one. Gas-



tric ulcers are one-twelfth as common as duodenal and they are distributed two to one in favor of the men. This difference in distribution may be assumed to be due to the greater stress of modern life upon the male or, what seems more likely, to a greater tendency for emotional impulses to spread through the sympathetic system in the female and the craniosacral in the male. Certainly we see more atonic stomachs and intestines in women than in men.

Spasm of the colon in a mild form is the most common cause of constipation and as such is a matter of great concern to a large portion of our population. Most colons would perform more satisfactorily if allowed to go their own course without interference. In a rough way the tone of the colon corresponds to the general nervous tension. In times of stress we see either local or general spasm most evident in the sigmoid. It may be of some significance that diverticula (except the congenital form) are prone to occur at the common sites of spasm. They may be the late results of chronic constriction.

In our experience antispasmodics have little influence upon these conditions. Nitrites are sometimes useful but, like atropin, are erratic in their effects. Theoretically sedatives should be much more effective. We have had some success with luminal and it may prove valuable.

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#### DISCUSSION

RAYMOND G. TAYLOR, M. D. (Hospital of the Good Samaritan, Los Angeles).—We are indebted to Doctor Ruggles for presenting this important but neglected angle of gastro-intestinal disease or symptoms. While there are no rules to govern, it would seem that his suggestion to repeat the examination when no organic lesion is found, or when one is in doubt, is a good one. My experience would lead me to believe that the most common point for spasm engendered by the emotions is in the lower descending colon rather than in the sigmoid.

I agree heartily with Doctor Ruggles that the ordinary antispasmodics are unreliable and of but little use. Considerable personal experience with luminal, especially in spasm of the colon, leads me to believe it more often produces results than the more commonly used drugs.

✽

ORRIN S. COOK, M. D. (Mater Misericordiae Hospital, Sacramento).—This is a timely paper on an important subject about which very little has been written.

I have recently seen three patients, two of whom were high-pressure business men, with quite marked gastro-intestinal symptoms. The only x-ray findings were marked spasm and irritability of the colon, and symptoms were relieved entirely by appropriate treatment. The third patient was a very nervous woman, who had had her appendix removed for the same symptoms without relief, and in whom the x-ray findings were the same as in the two men.

Undoubtedly patients are at times subject to surgery whom the roentgenologist may save from unnecessary operation if he will bear this condition in mind.

✽

ROBERT R. NEWELL, M. D. (Stanford University Hospital, San Francisco).—Doctor Ruggles has made an interesting entry on a difficult field. Morbid physiology is a much less steady foundation for diagnosis than is morbid anatomy. This is partly because it is

less narrowly topical. Due to the functions of the nervous system and the hormones carried by the blood, disease in one location may cause disturbance of physiology at other locations, sometimes very remote ones.

If the roentgenologist desires merely to make diagnoses wherever possible, he will perhaps wisely limit his observations to evidences of anatomical lesions. But if he has a broader view of his obligations, if he wishes to be of maximum service to his clinical consultant, he will note and report also the variations in constitution and in physiology which his methods may reveal.

That disturbed physiology from remote causes may at times lead to mistaken diagnosis cannot be denied. Doctor Ruggles has cited some interesting instances. But I do not believe these are frequent. More often we find these functional disturbances interfering with our roentgenoscopic visualizations without actually misleading us. We are loath to call a viscus anatomically intact until we can see it in its entirety. That these functional obstructions to roentgenological certainty can often be removed by attention to the patient's emotional state is, I think, the most important thing in Doctor Ruggles' paper. We will be well rewarded when we take the time to repeat unsatisfactory gastro-intestinal examinations and exhibit the sympathy necessary to relieve unsatisfactory emotional states. I have been dumbfounded at the miraculous effect sometimes observed in a stubborn pylorus following a minute's conversation on the subject of good things to eat.

In regard to antispasmodics, they may be twofold. That a certain sign disappears temporarily on antispasmodic medication does not prove it to be of no importance. I believe it is often possible to relieve the topical spasm of duodenal ulcer by full doses of atropin.

#### PSYCHIATRY IN ACTION\*

By ROBERT L. RICHARDS, M. D.

San Francisco

DISCUSSION by G. E. Myers, M. D., Los Angeles; Edward W. Twitchell, M. D., San Francisco; Joseph Catton, M. D., San Francisco.

A LITTLE more than one hundred years ago the mentally sick were lifted from their loose straw and dungeons to mattresses and prison cells. About 1840 the medical superintendents in Pennsylvania and the East advocated and practiced a plan of treating and curing the mentally sick that compares favorably with modern methods. But it was not until the nineties that hospital care and treatment was generally adopted. In 1909 Mr. Clifford Beers formed the National Mental Hygiene Society and introduced community standards and plan as opposed to the institutional and political plan. In 1912 Dr. E. E. Southard in the Boston Psychopathic Hospital adopted the ideal of a community hospital and community service. Since then in rapid succession have followed outpatient clinics from Maine to California, and even traveling clinics in Iowa, Colorado and a few other places. Since 1922 child guidance clinics have been established from coast to coast and have contacted and coöperated with schools, social agencies, juvenile courts, and problem children in homes. Industry has found it profitable to employ full-time psychiatrists to care for the mental

\* Read before the Neuropsychiatry Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



hygiene of employees, to reduce labor turnover, to lessen accidents, and to increase efficiency. Families of their own accord are requesting preventive work for mental problem children and aid in caring for chronic mental patients at home. In New York about four thousand patients have been removed from state hospitals and cared for in the communities. Even in general hospitals one now finds in the case histories mention at times of the mental attitude of patients to the disease and rough estimates of the type of personality. Occasionally in general medical journals one now reads of the influence of mental factors upon disease and the need of recasting medical education in psychiatry. In general hospitals and out-clinics, mental cases are now being cared for as accurately and as successfully as medical and surgical cases are cared for. In 1909 the United States Army formally recognized psychiatry as a specialty, and in 1917 established an efficient neuropsychiatric service in the war. Mental deficiency and epilepsy are now definite sections in the American Psychiatric Association.

All this means that psychiatry has come from behind its walls and gone into action to meet the increasing demands of the community. Psychiatry is learning to speak in terms understood by medicine in general, by social organizations and by the public at large. This also means that the medical student must know something of mental facts and diseases and the possibilities and the limitations of psychiatry. The student must be prepared to meet the demands of the community in which he lives.

#### PSYCHIATRY IN WAR

In the spring of 1917 I met with a small group in New York at the National Committee for Mental Hygiene to organize a military neuropsychiatric service under Colonels Bailey and Salmon. It is interesting to note that the doctors selected for this service rated the highest in the mental test given to the medical corps and equaled the highest standard required in the Army—that of the engineers. Having had charge of the operating of neuropsychiatric boards on the Pacific Coast and of the care of all discharged mentally disabled soldiers from the Rocky Mountains west, I can state that psychiatry met these demands efficiently and coöperated intelligently with the military organization in the prevention and treatment of mental conditions during the war. The only complete mental survey during the war was made at Camp Kearney, and the mental disability discharges later from that division were almost negligible. Psychiatry in action in war was successful. Psychiatry in action in peace can be equally successful. But psychiatry in peace must talk more in terms of human behaviorism and not in technical terms of psychological differentiations.

#### PSYCHIATRY IN PEACE

Recently in the Alameda County community the superior judges demanded that mental cases for commitment receive better medical treatment. In Highland Hospital an improvised twelve-bed ward was made available and has operated satisfactorily to the judges and the community for about two

years. The nursing personnel was almost entirely untrained and was an average general hospital personnel. Part of the time the interns served on a twenty-day basis, but were generally more confused than efficient during the brief service. Later a resident physician, relatively untrained, was obtained and this arrangement has proven more satisfactory. The patients have remained in the ward for treatment and study from two days to two weeks, because of the coöperation of the judges. All cases were given a diagnosis, and all state hospitals reported to us their final diagnosis made at the end of one to three months. This was therefore comparable to a receiving and a final diagnosis in a general hospital. In Cook County Hospital in Chicago the changes of admittance diagnosis after study in the various wards were found to average 15 to 20 per cent. It is well to see if psychiatry is equally successful under similar conditions.

#### COMPARISON OF COMMITMENT DIAGNOSIS WITH THAT OF STATE HOSPITALS

I have selected for a comparison one year's current cases on the psychopathic ward of Highland Hospital. No paroles or parole institutions were used as in Los Angeles. These cases were either safely treated on discharge at home after two days to two weeks' study or they were sent to state hospitals. A few cases sent to homes have subsequently been returned for commitment, but on the whole the psychiatric judgment has been correct and no damage has occurred from this plan. Indeed the community is so constantly seeking the service that many must be refused because of the limited facilities of the hospital.

Two hundred and forty-eight cases were committed to state hospitals in California, and one hundred and sixty-four cases were discharged to their homes without commitment. In these two hundred and forty-eight committed cases by comparing the initial tentative diagnosis with the subsequent state hospital diagnosis we can estimate objectively the accuracy of psychiatry in action. Briefly, I find the following interesting facts:

1. The total or gross divergence in diagnoses was 16 per cent (forty cases). In no instances, however, had this worked to the detriment of the patient.
2. The net divergence in diagnoses was 2.8 per cent (seven cases) where the difference in diagnosis was a radical one and not merely a degree of emphasizing of certain trends.
3. In addition because of inability to secure the serological facts in the time at our disposal, nine cases (3.6 per cent) of paresis were missed. In looking back over our clinical records I am still unable to confirm the state hospital diagnosis in the absence of serological findings in these cases.
4. The greatest divergence in diagnoses (10 per cent, twenty-five cases) was naturally in the groups diagnosed manic depressive psychoses and dementia praecox. Of these twenty-five cases I found that in sixteen cases (6.4 per cent) we had made an original diagnosis of dementia praecox



which was subsequently changed in the state hospital to manic depressive psychosis. On the other hand, in only seven cases (2.8 per cent) had we made an original diagnosis of manic depressive psychosis which had subsequently been changed to dementia praecox in the state hospital. Evidently we were overly cautious and pessimistic as to outlook in a number of cases on short periods of observation of the beginning of the attack and more time was necessary for good judgment.

Our diagnoses in the two hundred and forty-eight cases were: dementia praecox, 63 cases; manic depressive psychoses, 63 cases; neurosyphilis, 27 cases; senile psychoses, 28 cases; alcoholism and alcoholic psychoses, 28 cases; paranoid states, 18 cases; drug addiction 9 cases; epileptic psychoses, 5 cases; toxic psychoses, 5; psychopathic with suicide, 2.

#### PSYCHIATRY IN MEDICAL EDUCATION

In medical education so far psychiatry has failed because it has not been understood by the average medical student. What the average medical student does not understand he scorns. He has two favorite mental reactions: (1) that psychiatry is hopeless and he knows nothing about it; (2) that nobody else knows anything about it and he amuses himself by "playing with it." Of course he runs away from a psychiatric patient when danger threatens.

Psychiatry can attack the problem of medical education in two ways:

1. Create a public demand by practical efficient work in the community—a flank attack.

In creating a public demand we shall meet many nonmedical forces who regard all actions as either good or bad and having no scientific conservatism, rush to some imagined goal and form cults and movements of all sorts. Evidently there is need of scientific medical guidance or the end is worse than the beginning. Pragmatic success in treating mental cases is the only basis on which we can approach the community. Diagnosis and prognosis are of value only to scientific medicine. They have no value with, and stir up opposition in a community. As usual the community has tried all the known home remedies for human behavior before the psychiatrist sees the case. Hence you must talk the language of behaviorism and secure practical results or explain the reason why such results are impossible. The final usable human functioning results or protection against unusable human functioning results—these are what the community wants. If you can give them such results you can secure the community support and turn the flank.

2. Change psychiatric instruction to correspond with other medical instruction and, beginning with a physical basis in the brain cortex, work out logically and consecutively to mental diseases and mental problems—a frontal attack. Fortunately in the works of Franz, Lashley and Herrick in this country we have a knowledge of the laws governing cortical action, and there is no more "a large silent area of brain cortex." These laws correspond with what we know of the behaviorism of

animals and of the mental development of the human being.

My main effort is to suggest a scheme of psychiatric instruction in harmony with other medical instruction and confined to the needs of the general practice of medicine. I am aware that the demand in medical education today is for the basic needs of medicine as opposed to specialized knowledge of medicine. It is well, however, first to state two facts in regard to the basic needs of medicine as we know it today:

1. Medicine is now more concerned with efficient living than with prevention of death. Successes in combating infections, health examinations and general sanitation efforts indicate this fact.

2. Practically it is admitted that neuroses form a large part of medical work—even estimated as high as 80 per cent. Faulty mental adjustment is admittedly the basis of neuroses, and medical education must take cognizance of training in seeing and understanding the import of mental facts or give up the treatment of neuroses altogether if fair with the community.

#### SUGGESTED PSYCHIATRIC MEDICAL INSTRUCTION

##### I. BRAIN HISTOLOGY

1. Structure in general of the brain cortex and in what ways it differs from the structure of other bodily organs with the therefore presumptive relation of the brain cortex to the body as a whole.

2. Experiments in discovering how this brain cortex functions as a whole: whether it is silent as to function in three-fourths of its structure; or whether the function is measured in some other way than activity and inactivity as other bodily organs are measured. Laws of human brain function.

3. Evolutionary data as to the functioning of animals with no brain cortex, with the simplest fore brain structure, with more or less automatic midbrains, and with actual brain cortices.

4. Human versus animal behaviorism: how man leaves the instinctive animal level and plans toward some goal; how man starts with the smallest structural and therefore the most plastic beginning and grows through various stages to senility.

5. Personality growth: growth accidents; line of growth determined by location of fixed points; relation of heredity and environment to growth.

6. Analysis of student's own personality trends.

##### 2. BRAIN PATHOLOGY

1. General consideration: Personality always the background. Quantity of mental power always secondary to the line of growth and other qualitative factors. Acuteness or chronicity of the process depends upon etiological factors.

2. Mental lack or defectiveness.

3. Psychopathic personality or deformed growths.

4. Effects of acute and chronic infections and certain poisons on the brain cortex.

5. Type of functional reactions of the brain



cortex vary at different age levels, *e. g.*, childhood, adolescence, adulthood, senility.

6. General types of pathological functioning of the brain cortex associated in part with general bodily conditions.

### 3. GENERAL GROUPINGS OF CLINICAL MANIFESTATIONS OF PATHOLOGICAL BRAIN FUNCTIONING

1. Maladjustments at different instinctive and growth levels leading to neuroses under stress such as hysteria, neurasthenia, anxiety states, etc.

2. Emotional variations of a pathological degree leading to manic depressive psychoses.

3. Deformities of growth leading to paranoid states.

4. Destructive crippling of growth leading to dementia praecox.

5. Destructive changes leading to the mental deterioration of dementias.

6. Explosive changes shown in the excitements of epilepsy, hysteria, arteriosclerosis, certain poisons, and in dream states.

### 4. PREVENTIVE MEASURES

1. Care to establish the necessary basic trend of successful personality growth in the plastic stage of childhood. Birth and other traumas are mentally serious.

2. Influencing personality growth by measures belonging at that mental level and not by adult measures—especially childhood and adolescence.

3. Sex instruction at the proper time and of the different biological or emotional kinds.

4. Avoidance of alcohol, syphilis, and habit-forming drugs.

5. Acute and chronic infections and head traumas mean mental as well as physical care and convalescence.

6. Earlier mental abnormalities with mental treatment and nursing are curable. Many older mental abnormalities are not curable and must remain in a limited environment all their lives. Hence early recognition is a medical responsibility.

Either psychiatrists will select and advocate some plan of action or some chance plan will be formulated by those who do not know that psychiatry long ago passed the stage of psychoses or insanities and is now an important part of community medical work. If an intelligent plan is adopted psychiatry will be understood and no longer be called the stepchild of medicine.

384 Post Street.

### DISCUSSION

G. E. MYERS, M.D. (1052 West Sixth Street, Los Angeles).—In connection with Doctor Richards' paper, I should like to mention some statistics:

In the United States are 140,000 physicians. There are approximately 1,000,000 persons employed in the general field of medicine. Between \$5,000,000,000 and \$10,000,000,000 are invested in hospital buildings and equipment. There are 563 institutions for the care of mental patients, with a capacity of 373,364 beds, and 432 general hospitals with a capacity of 345,364 beds. Thus, while there are 3759 more general hospitals than hospitals for mental disease, there are 28,000 more

beds in the hospitals for mental disease than in the general hospitals.

The National Committee for Mental Hygiene has stated that, of the children now attending school and college, about "960,000 will enter a hospital for mental disease at some period of their lives, if the present rates for first admissions are maintained." Neuroses alone, according to Dr. William J. Mayo, are responsible for more human misery than tuberculosis or cancer.

There is much that we do not know about medical statistics. The work of the Committee on the Cost of Medical Care, of which Dr. Ray Lyman Wilbur is chairman, is therefore of the greatest importance. After some previous discussion in 1925 and 1926, fourteen persons met in informal conference in Washington on April 1, 1926, to consider problems regarding the economics of medicine. At the close of this conference a committee of five was appointed to formulate a tentative series of studies concerning the economics of medical service and to develop plans for the creation of a committee to be responsible for their conduct. This committee met several times, formulated a tentative list of studies, communicated with a considerable number of physicians, sanitarians, and economists to ascertain their opinions regarding the proposed plans, and arranged a conference in Washington, May 17, 1927, at the time of meeting of the American Medical Association. This conference resulted in the creation of the above-mentioned committee. The committee as now organized consists of forty-two persons—fourteen private practitioners of medicine, six representatives of the public health field, eight representatives of institutions interested in medicine, five economists, and nine persons representing the general public. A five-year program has been outlined for a wide and thorough investigation of the medical situation, with plans for securing reliable statistics which are not available at the present time.

An important part of the investigation will be in the field of psychiatry—"Among what proportion of adults might early symptoms of mental and nervous disorders be discovered which could be successfully dealt with were there qualified specialists available?" "What facts would similar studies reveal among college students, among high school students, and among elementary school pupils?" "For what length of time and with what cost have psychoneurotic patients been treated for general disorders before the true nature of the disability was recognized?" Extremely interesting and reliable data are being secured by the Department of Mental Disorders of the state of Massachusetts, as well as by other organizations, in coöperation with this committee. The cooperation of all physicians should be given.

It is highly desirable that more young men, well equipped through education, should be attracted to the field of neuropsychiatry. The inadequacy of teaching facilities in this field in the past has been deplorable. This situation is being remedied in some quarters at the present time as at the Columbia-Presbyterian Medical Center in New York City, where the magnificent New York State Psychiatric Institute and the Neurological Institute will provide clinical material for teaching purposes.

An outline such as Doctor Richards has proposed is very timely and merits the most careful thought.

✽

EDWARD W. TWITCHELL, M.D. (909 Hyde Street, San Francisco).—It is just as well that there should be an increasing interest in psychiatry on the part of both physician and laity, as the next generation is going to have greater need of it than had any before. The organism does not adapt itself to changed environment with great rapidity when certain limits are passed. Those whose forebears have been for generations country folk react badly to city life and its stimuli. Even the old-time city dwellers have a multitude of new problems to face in the city of the



present. The increase of competition, the acceleration of pace, the multiplication of noises and hazards and the changed character of foods, all play a part in the etiology of nervous disease. Finally the increased socialization of medical aid by accident and health insurance will end in a vast number of neuroses to be treated at the expense of the state, as the experience of State Compensation Commissions and the Veterans' Bureau has already shown.

It will therefore be likely that the physician of the future will have much more to do with nervous and mental disease than had his brother of the past. We have seen whole groups of disease, such as typhoid, malaria and diphtheria, formerly the mainstay of the family doctor, reduced, some of them, to the vanishing point, but the psychoses and the neuroses are showing no sign of abatement. Men will be needed to treat these diseases, and must be trained in the medical schools.

There is little opportunity for the student to learn the treatment of the neuroses in the medical schools at present. Neurological clinics as now organized cannot give adequate treatment to the psychoneurotic. The work is so time-consuming that the clinic would soon be choked with waiting patients if the needed time were given, and unless this time be given there can be no results.

One of the most needed things and one of the most difficult to achieve for the neurological department, is a satisfactory solution of the problem of the psychoneurotic. Some such program as that suggested by Doctor Richards is much to be desired.

✱

JOSEPH CATTON, M.D. (209 Post Street, San Francisco).—Doctor Richards' paper outlines clearly the increased rôle that psychiatry is coming to play in many of our social problems. He makes an eloquent plea for the proper education of physicians in order that they may meet the newer responsibilities which they are being asked to shoulder. The physician has been taught quite well to care for the disease which a patient has, and very little of how to treat the patient who has the disease. In the relationship "physician-individual patient," it is most important that the physician have an understanding of the whole patient—his background, his environment, his personality type, etc., if he would care adequately for the diseased heart or kidney.

Equally important, however, the physician must learn that society has discovered the psychiatric aspects of pauperism, unemployment, prostitution, drug addiction, and the various forms of delinquency; and the practical hopelessness of caring for a full-blown social failure has been recognized. Fortunately, however, proof is being added each day that investigation by properly qualified psychiatrists may nip in the bud the tendencies toward these aggravated "end-results." I would suggest that one read very carefully Doctor Richards' paper and that, having read it, although one may forget much of his detailed exposition, he should carry away with him the most important indication of Doctor Richards' essay. It is this: that society has discovered that psychiatry offers expert service in connection with community problems. Doctor Richards makes a plea for what should have been, but has not been, obvious: namely, medical schools should prepare a certain percentage of our graduates to give competent psychiatric aid to the community.

✱

DOCTOR RICHARDS (closing).—Medical students tell me they would be interested in studying the brain cortex and its functions (mental facts) as an organ in the human body even if they never studied psychiatry as a specialty. Therefore a scheme was suggested covering such needs of an average medical student. I hope that it will lead to discussion, criticism and adjustment by those responsible for medical curricula. After a study of the brain from a comparative anatomy point of view Sir Arthur Keith estimated that the

human brain had not attained more than 50 per cent of its possible development. Doctor Tilney of New York estimated that the human brain had reached only a 25 per cent stage of development. From the viewpoint of what we already know of brain function and the viewpoint of greater possible development, certainly the brain deserves more consideration than it now receives as an organ in the human body.

## DIAPHRAGMATIC HERNIA\*

By W. E. HUNTER, M.D.

Salt Lake City, Utah

Discussion by George W. Middleton, M.D., Salt Lake City, Utah; James P. Kerby, M.D., Salt Lake City, Utah.

DIAPHRAGMATIC hernia, by reason of a recent death in a newborn child about four months ago, became a subject of special interest to me. I had begun searching the literature and had it on my desk when a second patient was brought to the office with a traumatic diaphragmatic hernia. The study of these two cases was the means of discovering a third patient with diaphragmatic weakness. It is these three cases which I report at this time.

### CASE REPORTS

CASE 1.—On January 18, 1927, Mrs. B. of Mount Pleasant engaged me to care for her during her third pregnancy. The previous pregnancy was normal and the baby was born without difficulty, but died shortly following birth. It was to prevent a repetition of the previous labor that she was brought to Salt Lake.

The present pregnancy was accompanied by the usual discomforts of childbearing, but otherwise was normal in all respects until July 23, 1927, when the patient complained of "shortness of breath" and a "tense feeling in the abdomen." At this time she was found to be suffering from a beginning hydramnios. The liability to premature labor and the tendency to fetal abnormality in cases of hydramnios was explained to the husband and the patient advised to stay within easy reach of the hospital. On September 12 the patient telephoned that the "membranes" had ruptured and that more than two gallons of water had come away. At the hospital four hours later she gave birth to a six and a half pound baby girl. The labor was not difficult. The child looked normal, but did not cry.

I had just finished explaining to the husband that the baby had no deformity, when I discovered that it was not breathing properly. I severed the cord and began mouth-to-mouth insufflation. I soon discovered I could not insufflate the lungs normally, but instead was forcing air into the stomach. This air became incarcerated, and could not be relieved except by the insertion of a catheter into the stomach. This is not the case in the normally developed baby. A hand applied on the epigastrium will prevent air going into the stomach and when it does enter the stomach it can easily be expelled by pressure. My further examination showed that the heart was on the right side. Later I was able to insert a catheter into the trachea, but even then I could not inflate the lungs as I wanted. By continuous effort the child's heart was kept beating for one hour. An autopsy was obtained after considerable duress, and the condition, as shown in Figure 1, was found.

*Autopsy.*—On opening the abdomen and thorax the appendix was found high in the epigastrium. The stomach was found unrotated and occupied the middle half of the left thoracic cavity, pushing the heart far to the right. The descending and transverse colon occupied its outer half. The left lung was not more

\* Read before the Salt Lake County Medical Society, January 16, 1928.



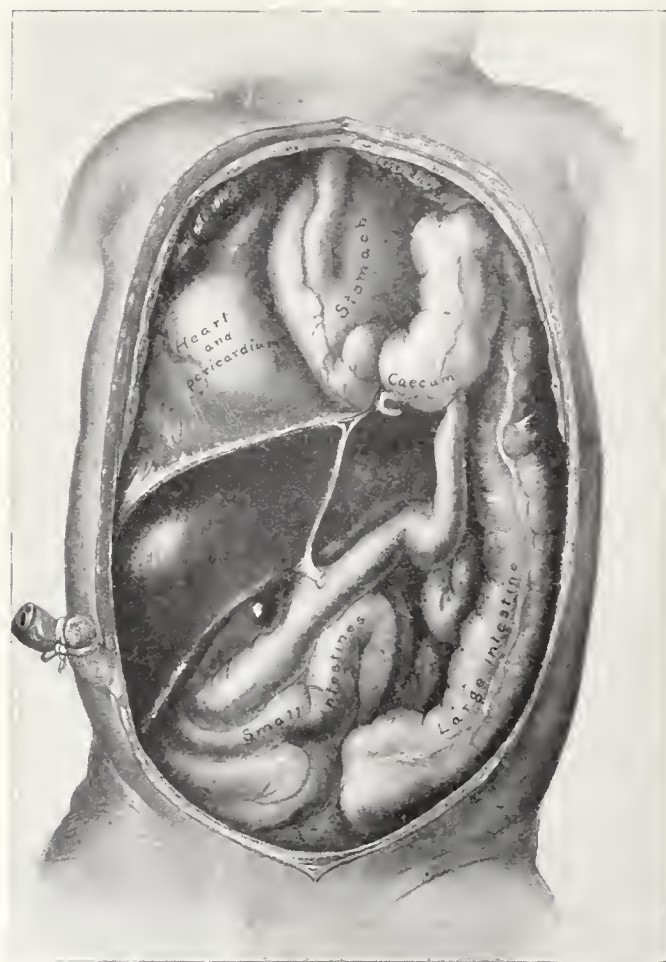


Fig. 1.—Case 1. Drawing showing rudimentary lungs, unrotated undescended stomach and failure of development of the left diaphragm.

than one-fourth the normal size, completely atelectatic and rudimentary. The two lobes were separate, as in the embryo, and looked more like pancreatic tissue than lung. The heart occupied the right thoracic cavity and was apparently normal. The right lung was rudimentary like the left and separated into three distinct lobes. The right diaphragm seemed to be developed sufficiently to hold the liver and form the base of the pericardial sac. The rudiments of the left diaphragm could be felt but not seen. Further post-mortem study was objected to because of sentimental reasons.

Later in discussing the death of the child I was informed by the mother that the attendant at the previous labor found the infant's heart far over to the right side. In a letter from Doctor Aldous, I find such was the case. This I believe is the first case on record where the mother has given birth to two children with this condition.

**Diagnosis.**—Congenital diaphragmatic hernia with arrested development of lungs and unrotated stomach associated with hydramnios in the mother.

**CASE 2.**—The second case was that of Dr. J. of Logan. Age approximately fifty-two. Previous history: Ill health began with stomach trouble in 1897; ruptured appendix in 1910; perforated gastric ulcer in 1912, with gastro-enterostomy. He has had the abdomen opened at other times for stomach symptoms. He has had a cough for two to three months. Influenza pneumonia in 1918. Since then he has been quite free from stomach symptoms. Since 1918 he has had myocarditis with hypertension.

**Present Illness.**—On October 18, 1927, about 9 p. m., while driving down Logan Canyon, the patient's car skidded and rather than let the car run over the embankment he deliberately ran it into the mountain. He states that he was unconscious for five or six hours, but later qualified this assertion by stating he could feel pain in the lower left chest and upper

abdomen. He also suffered considerable difficulty in breathing. The local doctor was called and set a broken arm and sewed up several lacerations about the face and scalp. The patient vomited incessantly during the first night, but has not vomited since. He suffered from hemoptysis for the next three or four days. Fever began the first night and gradually increased until October 23, when patient had a chill and temperature of 101 degrees. Since then his temperature has been as high as 102  $\frac{3}{5}$ , but at other times it has been subnormal. On several occasions he has wheezed like an asthma patient. He says his cough has been better since the accident. In the daytime he feels fairly comfortable, but at night he has had choking spells that almost end fatally. He has had to use the stomach tube to relieve his stomach of gas. He has attacks of dizziness and palpitation which cannot be relieved by digitalis or adrenalin.

The patient walked into our office one week after the accident. He was dyspneic and orthopneic, and complained of pain in the left chest. Breathing was labored.

Examination of the chest showed the heart moderately displaced to the right. The left border of the heart could not be made out because of the hyperresonance of the overlying lung. There was a soft systolic apical murmur. The physical findings over the right lung were essentially normal.

Examination of the front of the left lung showed apparently normal resonance above the clavicle and down to the second rib. Over this area there was vesicular breathing, somewhat accentuated. Below the second rib in front of the axilla there was fairly marked hyperresonance. Breath sounds, whispered sounds, and tactile fremitus were diminished or absent and voice sounds were markedly diminished. Examination of the left lung behind showed fairly normal resonance to the spine of the scapula, and vesicular breathing over this area. From the level of the spine to the lower angle of the scapula there was hyperresonance and diminution to absence of all sounds. From the lower angle of the scapula to the base there was moderate dullness and absent breath sounds.

At the fifth interspace in front at about the nipple line and less marked elsewhere over the hyperreso-

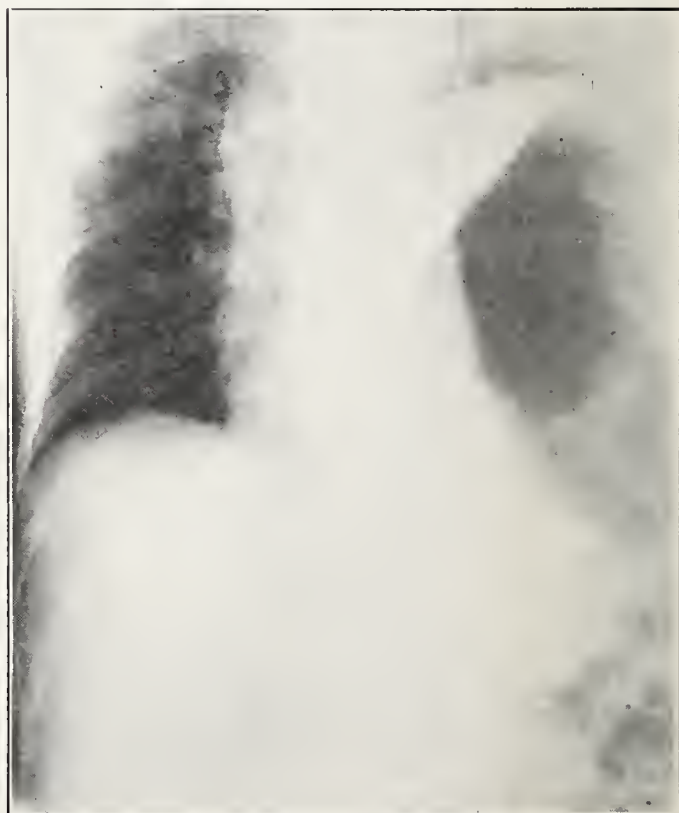


Fig. 2.—Case 2. Traumatic diaphragmatic hernia. The stomach, transverse colon, and spleen occupy most of the left thoracic cavity.



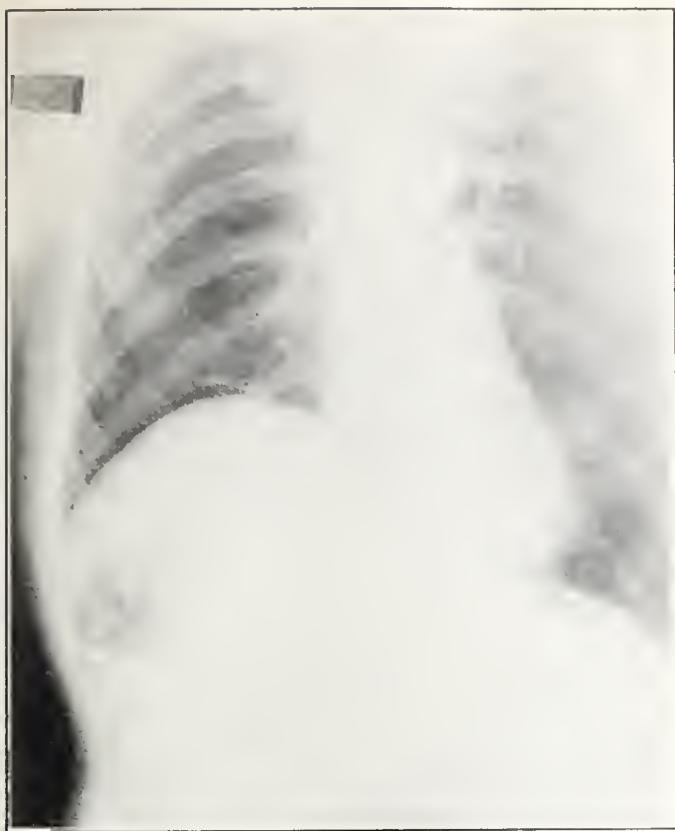


Fig. 3.—Case 3. Eventration of right diaphragm with the heart pushed to the left.

nance area there was a peculiar gurgle with each inspiration. There was tenderness over the sixth and seventh ribs in the anterior axillary line. In the epigastrium there was tenderness and a palpable gurgling sensation.

Fluoroscopy and roentgenogram of the chest showed the left lung lying compressed in the inner, upper fourth of the chest cavity (Figure 2). Below this level the left chest cavity was air-filled like a pneumothorax and separated from the compressed lung by a distinct somewhat irregular line. The heart was moderately displaced to the right. At the Latter Day Saints Hospital a barium meal was given and found to pass into a stomach lying largely in the left pleural cavity.

While in the hospital the clinical course remained unchanged. The patient had periods of dyspnea, palpitation, and pain in the left lower chest, all accentuated after eating. He left the hospital about three days later to go to the Mayo Clinic, where he was operated upon.

Doctor Harrington of the Mayo Clinic made the following report: "Because of the enormous size of the opening in the diaphragm, which upon x-ray examination appeared to be posterior, we first performed a left phrenic neurectomy paralyzing the diaphragm, intending to resuture the nerve after recovery. On November 12, we again operated upon him performing a left posterior extrapleural thoracoplasty, removing about four inches of the lower five ribs posteriorly, producing a partial collapse of the chest wall which would permit us to close the opening in the diaphragm. On November 16, through an abdominal incision, we attempted closure of the hernia. There was an enormous break in the diaphragm which had torn from the entire chest wall leaving a large oval rent. The entire stomach was in the left thorax, with only the pylorus extending through the opening in the diaphragm. The entire spleen, about one-half of the transverse colon, and the entire splenic flexure were also in the left thoracic cavity. After removal of these

organs from the left thorax the opening in the diaphragm was closed with interrupted sutures. We were able to obtain a very satisfactory closure of the opening by resuturing the diaphragm to the chest wall and, because of the preliminary paralyzing of the diaphragm and the thoracoplasty, were able to overlap the diaphragm onto the chest wall and resuture it for about three-fourths of an inch.

"He stood the operation very well although it was a very great risk. His immediate reaction was better than I anticipated, and his condition remained satisfactory for the first day. He then began to show signs of cyanosis with elevation of pulse rate and dyspnea. He was transferred to the oxygen chamber where he showed some improvement, but after twelve hours his condition became gradually worse and he died on the morning of the third day. On necropsy examination we found that he had pneumonia in the lower lobe of the right lung. The left lung was fully reinflated and in good condition. The closure of the opening in the diaphragm was very satisfactory.

"As to the etiology of this case, it is possible that there may have been some congenital weakness in the usual areas of fusion of the diaphragm, but undoubtedly this was a primary traumatic type hernia."

*Diagnosis.*—Traumatic hernia or (evisceration) of the left diaphragm.

**CASE 3.**—The third case is that of a farmer seventy years of age. Family history unimportant. He was operated upon eight years ago for inguinal hernia. Chief complaint, pain in the right upper quadrant.

On November 11, 1927, he gave the following history: He was troubled with sour stomach ten to twelve years ago. He has taken soda for a year or two without relief. He has been free from symptoms until three months ago, when he began to suffer with gas pain. For years he has had an obstinate constipation. Lately he has taken all kinds of physic. Although the bowels move well he still has a feeling that the bowel is never empty. He has a persistent idea that there is some obstruction in the bowel. Lately he has been a little nauseated and has tried various diets in hope of relief. He finds he must take physic for relief.

Physical examination was not remarkable. The roentgenogram showed a persistently high diaphragm on the right at least six inches higher than on the left. This part of the diaphragm was immobile and pushed the heart to the left (Figure 3). Six weeks later the second roentgenogram was taken with exactly the same findings as in the previous examination.

*Diagnosis.*—Eventration of the right diaphragm.

#### COMMENT

The general use of the x-ray and the perfection of operative technique have brought the subject of diaphragmatic hernia prominently before



Fig. 4-a.—Nine mm. embryo stomach above the liver. After Prentiss and Arey.

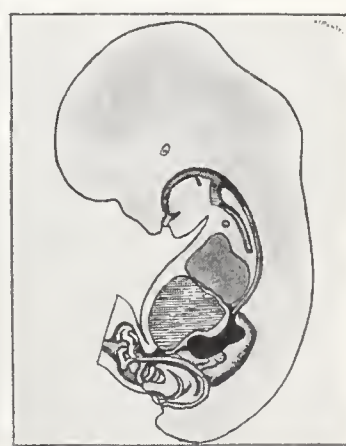


Fig. 4-b.—Seventeen mm. embryo stomach below the liver.





Fig. 5.—Congenital hernia of the diaphragm. Dawes, Surg., Gynec., Obst., October, 1918, p. 393.

the medical public. Since the diagnosis and treatment of this condition will be discussed by others, this paper will deal largely with the causes of the condition which is a subject of considerable interest.

The factors involved in the cause of these hernias are as different as are the hernias in type and location. It is interesting that only mammals should have a complete separation between pleural and abdominal cavities. Some of the lower animals have no partition and still others have a membranous partition, but this is situated anterior so that the lungs belong in the abdominal cavity. It is also worthy of note that diaphragmatic hernias do not have rings.

#### CLASSIFICATION OF HERNIAS

Diaphragmatic hernias may be arbitrarily divided into:

1. Congenital hernias.
  - (A) False hernias without a sac. (These constitute 80 to 90 per cent of reported cases.)
  - (B) True hernias with a sac. (These constitute 10 to 20 per cent of reported cases.)
2. Acquired.
  - (A) Hernias which develop through congenital weak areas in the diaphragm. These weak spots may be caused by:
    - (a) Defective development of the diaphragm.
    - (b) Pathological disease within the diaphragm itself or secondary to an abscess above or below the diaphragm.
    - (c) Blows which injure the musculature, the hernia occurring immediately or at a much later period.

(B) Blows which tear the diaphragm from its attachment to the chest wall. This condition is not a hernia but an evisceration or avulsion of the diaphragm.

3. Eventration. This is not hernia but a relaxation or weakness of one side of the diaphragm. Only ten cases have been reported in the literature, where this has occurred on the right side.

(A) Congenital.

(B) Acquired.

#### EMBRYOLOGY

In studying the development of the embryo we learn that the lungs, stomach, and liver are derived from an evagination and dilation of the upper part of the midgut. These first appear in the cervical region of the embryo and gradually wander downward to assume the adult position.

The diaphragm begins as a membranous organ in the cervical region and may be said to originate from three separate membranes: (1) Septum transverse that extends from the ventral wall backward beneath the pericardial sac to form the anterior and central parts. (2) The dorsal mesentery which extends forward from the posterior and central part, containing the esophagus. (3) The pleuroperitoneal membrane which gives rise to the posterolateral part. (4) Derivatives from the body wall. The adult diaphragm is a muscular structure, and its development takes place at a later date. The muscular elements begin at the periphery and grow between the leaves of the membranous structure centripetally. The tendinous portion originates, secondarily, from an atrophy of the central muscle fibers.

As the stomach develops downward or is pushed downward by the growing lungs, these membranes should fuse to separate the abdominal from the thoracic viscera. If the lungs fail to develop and the stomach remains high the diaphragm then fails to close or may even close below to make the stomach a thoracic organ, if some of the reported cases are authentic (Figure 4).

#### PROBABLE CAUSE OF HERNIA IN FIRST CASE

I believe that failure of the lungs to mature and push the stomach downward was primarily the cause of the abnormality in my first case. A cessation of the growth of the lungs is so frequently associated with this condition that this factor cannot be overlooked. It is also to be noted that cessation of growth of other organs such as cleft palate, patent ductus arteriosus, accessory lungs, and abnormal mesenteric relations of an atavistic nature might be factors in the development of this condition.

#### FORMATION OF SACS

In the congenital type where the abdominal organs have developed below the diaphragm and later return to the thoracic cavity through a congenital weakness in the diaphragm we would expect a sac to form and have a true hernia. If the hernia develops slowly a sac will form. If it occurs suddenly there will be no sac (Figure 6).

In not a few cases a pathological change in the musculature of the diaphragm may occur from



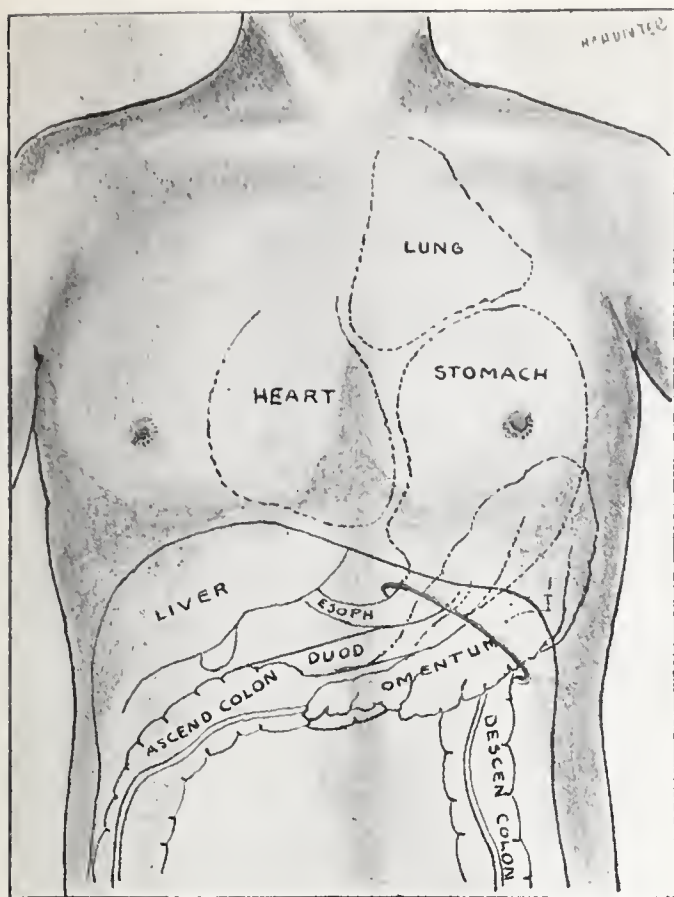


Fig. 6.—Acquired hernia of diaphragm. Seudder, Surg., Gynec., Obst., Vol. xv, p. 264.

disease or trauma, and years later the weakness may gradually give way and give rise to a definite hernia. It is this type of hernia that is most often met with in practice and which demands relief from an acute or chronic obstruction of the alimentary tract. The repair of the opening in the diaphragm may be done at this time or at a later date.

#### AVULSION OF DIAPHRAGM

The immediate cause of hernia in the second case is self-evident. From the long history of lung and stomach trouble with subsequent operations one would naturally surmise a weakness of the diaphragm or eventration preceding the final rupture. Doctor Harrington of the Mayo Clinic was not able to make this out at the time of operation. In any case a sudden increase in abdominal pressure if strong enough will naturally tear the diaphragm loose from its attachment. The finding of cases where such a tearing away of the diaphragm from the chest wall has occurred is rather uncommon, for these patients are most often killed by the blow.

Traumatic hernias following lesser violence usually develop in some of the weak spots of the diaphragm. They may give rise to immediate obstruction of the bowels or start a weak point that gradually enlarges so that the hernia is acquired or develops secondarily.

#### EVENTRATION OF DIAPHRAGM

Eventration may develop (a) from immature development of the lungs which naturally would leave the diaphragm high; (b) developmental injury to the phrenic nerve causing relaxation; or

(c) improper development of the musculature of the diaphragm. Such cases are often associated with other developmental defects, such as an unrotated stomach that interposes above the liver and below the diaphragm. Several cases have been reported where this has occurred. It may be acquired from pathological disease above, below, or in the diaphragm itself.

#### SUMMARY

1. Diaphragmatic hernia is much more common than it is thought to be and often overlooked by the physician or surgeon, the diagnosis being made by the roentgenologist or at autopsy.

2. It is most often congenital and may occur at the natural openings of the diaphragm or at weak spots in the diaphragm, due to either improper development of the musculature or failure of the stomach to descend and mechanically prevent fusion of the diaphragmatic segments.

3. Eventration is a congenital weakness of the diaphragm, and may be due to failure of the lung to develop properly and push the diaphragm down. Nonrotation of the stomach is frequently associated with this condition. It may also be acquired from degenerative changes in the musculature or injury to the phrenic nerve.

Inter-Mountain Clinic.

#### DISCUSSION

GEORGE W. MIDDLETON, M. D. (Inter-Mountain Clinic, Salt Lake City).—In the large industrial plants it often happens that parts of a machine are produced at stations some distance from the main center and, after they are finished, transported to the point of assembly to be built into the machine.

In the great human laboratory we observe the same principle. The gonad is produced up near to the kidney, and then transported downward to its proper position; the appendix is produced in the region of the spleen, and rotated around with the blind end of the great bowel to its proper position in the right lower quadrant; the central part of the diaphragm is produced in the upper thorax and drawn downward to fuse with the peripheral part and form the partition between thorax and abdomen.

In these organs, or parts of organs that are formed in one part and transported, there is always a tendency to abnormality in structure, size, or position; thus we have the small undescended testis, the post-cecal appendix, and the diaphragm that fails to fuse.

Congenital diaphragmatic hernia is always a developmental defect; acquired diaphragmatic hernia is a matter in most cases of rupture of the diaphragm through suddenly increased abdominal pressure.

Naturally the symptoms are either of the respiratory or the digestive systems, since these two great systems are always both involved.

On the respiratory side we may have cyanosis, dyspnea, and diminished vesicular breathing, according to the size of the hernia. If the herniated organ is full of gas there will be a tympanitic note on percussion; if it be full of fluid there will be a dull note. The heart is always pushed out of place, most often to the right, since these hernias are nearly all through the left diaphragm. From the digestive side the symptoms are of some degree of obstruction of the alimentary tube. These may be so mild in the lesser cases that there is little departure from the normal, or so violent in the graver cases that there is complete obstruction with all its attendant dangers. In the large hernias, the stomach, spleen, colon, small intestine, and sometimes the liver are pushed through. There will be the attendant pain and shock of torsion and pressure.

The x-ray has come to our aid in a wonderful way in making the diagnosis of diaphragmatic hernia. As



a matter of fact, before the aid of the x-ray came the cases were either found postmortem, or diagnosed in the operation for obstruction of the bowel.

Of course the only curative treatment of this grave condition is surgical. With early diagnosis, and a chance for deliberate work, the mortality has gradually diminished.

The two lines of attack are from the abdominal and from the thoracic sides. Some of the more recent operators when necessary are combining the two. The French surgeons have held mostly to the thoracic route, while the Americans and English have rather favored the abdominal. Experience in the recent World War showed that one thoracic cavity can be opened with comparative impunity, provided the other one is intact and healthy. Some operators have done a preliminary resection of the phrenic nerve to paralyze the diaphragm; resuture of the nerve is done later to prevent eventration of that side of the diaphragm. From the abdominal side the best exposure is through a long transverse incision close to and parallel with the diaphragm; from the thoracic route a large flap door embracing all the thoracic structures is raised, and the hernia exposed and dealt with.

Truesdale of Fall River advises an incision beginning at the sixth rib in the axillary line, descending through the eighth and ninth ribs, thence being carried inward to the costal cartilages, and upward to the level of the starting point in the sixth rib. When necessary for reduction he carries the inner limb of this incision clear through the diaphragmatic attachment into the abdominal cavity, and thus combines the thoracic with the abdominal routes. After reducing the herniated structures, and disposing of the sac, when one is present, the diaphragm is firmly united with chromic sutures and the wound closed without drainage. Aspiration to free the cavity of fluids or air may be resorted to. This may also aid in the expansion of the lung. On the whole these cases today offer a much more hopeful aspect than formerly.



JAMES P. KERBY, M.D. (Boston Building, Salt Lake City).—The use of the x-rays, as Doctor Hunter indicates, has increased greatly the number of cases reported. Before their discovery diaphragmatic hernia was very seldom diagnosed other than at the operative or postmortem table. It is my belief that many cases of slight hernia are unrecognized. More careful examination of our patients, especially in the horizontal and Trendelenberg positions, with particular reference to the natural openings and weak points, will reveal these often unrecognized cases. The occurrence of a small hernia at the esophageal opening is, I think, not infrequently overlooked.

As the essayist indicates, a few cases of congenital absence of the diaphragm have been noted. While some of these are probably authentic, I wonder if in those cases in which the diagnosis has been made, other than after a complete opening of the thoracic cavity, a condition similar to that described by Doctor Hunter in Case I did not exist, *i. e.*, at least a very rudimentary diaphragm. It is difficult for me to conceive, despite ability to accommodate to environment, of an individual carrying on an active athletic career, as did the patient mentioned in a recently written paper, without at least some restraint on the pressure of abdominal viscera on the heart.

I desire to corroborate from observation the desirability of the combined method of attack of this problem. There are few more formidable problems presented to the surgeon than this. Skill in judgment as to the best procedure, and dexterity in execution of the work planned are absolutely essential. In the few cases of this kind I have seen the combined abdomino-thoracic incision or, as in one case, two separate incisions, give sufficient exposure to enable the operators to suture the diaphragmatic rent and handle the thoracic and abdominal viscera without undue trauma.

## THE COMMONER SURGICAL DISEASES OF THE RECTUM, AND THEIR TREATMENT\*

By M. S. WOOLF, M. D.  
San Francisco

DISCUSSION by William H. Kiger, M.D., Los Angeles;  
Dudley Smith, M.D., San Francisco; Lloyd A. Clary,  
M.D., San Francisco.

AT the University of California we have had an opportunity during the past five years of segregating the treatment of diseases of the large bowel and of the anal canal. During this time many matters of significance have manifested themselves both in diagnosis and treatment which may be now suitably reviewed.

We shall omit any remarks on cancer of the colon and rectum except to state that this subject has recently been given suitable attention and that, for the present, little more is to be expected in the treatment of this serious problem. On the other hand, the treatment of fistula, especially the multiple type; of complete prolapse; of fissure and of other anorectal pathology is still unsatisfactory in many hands, but may be improved with a little closer attention to the anatomy and physiology of the part.

### THE ANAL CANAL

Inspection of the anal orifice reveals in the normal individual a rather tough, pigmented, regularly corrugated skin, the folds being arranged radially and regularly around the opening, which is firmly closed. Thus, the skin is normally redundant. These folds may be abnormally hypertrophied, usually in front or behind, and even a small amount of lining may present itself on their inner surface as a glistening mucous membrane. We then have a condition of external hemorrhoids, and it must always be remembered that these are skin with some lining.

The anal canal is from one to one and one-half inches long and when closed forms an antero-posterior slit. At the anterior and posterior limits of this slit-like aperture the skin may be redundant when we have the anterior and posterior sentinel external piles. The lower half-inch of the anus is lined by squamous epithelium, which has been formed from the embryological invagination of the surface dimple which forms the proctodeum. The upper half of the anal canal is lined by columnar epithelium. This upper portion has not the smooth lining of the lower, but is fluted longitudinally by about ten columns, which project forward. Joining the lower end of these columns are small pocket valves like the aortic valves on a small scale which may not only be cup-like, but also may have small sinuses, or

\* From the University of California Hospital.

\* Read before the General Surgery Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



crypts, running in an upward and inward direction. It may be noticed here that these are prone to retention and damage when they may give rise to a cryptitis or even a penetrating infection resulting in an abscess or fistula. The line, sometimes definitely visible where the upper and lower divisions of the anus meet, is termed the "white line of Hilton," and the columns those of Morgagni. The squamous lining is also marked by about four triangular papillae situated around the canal. These are always present, but may be hypertrophied even to the extent of forming polypi. Important in the injection treatment of hemorrhoids is the fact that the upper portion of the anus is, like the rectum, insensitive to painful stimuli.

In its middle half, the anal canal is surrounded and gripped by the external sphincter ani muscle, which is broader than it is thick, but its thickest portion is in the middle and then it tapers away both toward the anal orifice and toward the rectum. Above this muscle is the broad sheet of the levator ani muscle covered by pelvic fascia on both upper and lower aspects. It is pierced by the bowel with its own muscular coats. At the external sphincter the longitudinal muscular fibers become very attenuated, but what is left of them pass internal to the sphincter to be attached to the skin which it helps to pucker as a corrugator cutis muscle. The internal circular fibers of the rectum also extend to the skin internal to the external sphincter, but they increase in thickness so that it has been termed the internal sphincter muscle. It lies internal to the external sphincter, and hence its name. It is probably not a sphincter, but a detrusor muscle reflexly contracting immediately the fecal mass passes it. The two muscles having important sphincteric control are the levator ani which has a shutter action, and the external sphincter which has a diaphragmatic contraction. They both have a somatic nerve supply and are voluntary, while the internal sphincter, so-called, is involuntary in action and innervated by the sympathetic nervous system. The radicles of the veins and the terminal arteries are found in the cellular tissue between the muscles of the bowel and the mucous membrane.

#### SURGICAL LESIONS OF ANAL CANAL

**Hemorrhoids.**—The common surgical lesions found in the anal canal are hemorrhoids, fissures, abscesses, fistulae, and polypi.

It was formerly the custom to divide hemorrhoids into internal and external, and internal hemorrhoids again into arterial, venous, and capillary. A truer classification would be internal and external because only between these two is there any essential difference. The former are almost always venous in spite of the fact that an arteriole may occasionally show pulsation when ruptured or punctured and in spite of the capillary oozing which is seen in some hemorrhoids.

Internal hemorrhoids originate in the upper part of the anus and not in the lower. They will, therefore, always have their attachment above the anal papillae even if they prolapse externally, and

therefore they are insensitive to the puncture of a needle when injected. External hemorrhoids are mainly localized redundancies of the perianal skin, but they may evert or even cause a small prolapse of the lower anal mucosa so that in this latter case they might be termed intero-external. They are extremely well innervated and are sensitive to the prick of a needle. Often the veins of such a mucous membrane are damaged at stool and thrombosis occurs, giving the very painful thrombotic pile.

What is the place of injections in the treatment of hemorrhoids? I would say that this method is a valuable adjunct to surgical methods. I still have the personal preference of removing surgically all types of hemorrhoids if the patient is agreeable. Properly done, there is little danger of their returning, so that this method has the great advantage of certainty. However, if this cannot be done for personal reasons, or because of some medical contraindication against operation, certain types of internal hemorrhoids may be injected, but never the external. If the internal type are to be injected they must be accessible; that is, no painful fissure, or spasm of the sphincter, must be present. When a proctoscope, or preferably a circular Kelly anoscope of two inches is inserted, it should be withdrawn while the patient strains, so that the hemorrhoids, which are only an inch from the orifice, project in the speculum and gradually become distended. Then a hypodermic needle punctures sharply the most prominent part of the body of the pile and the injection is then made. The purpose of the injection made with a fibrosing chemical agent is to cause an aseptic thrombosis and inflammatory reaction which obliterates the veins and causes a shrinkage of the mass in general. But there is a limit to the shrinkage. This will indicate that hemorrhoids which regularly prolapse outside the orifice and do not immediately and easily return after defecation should not be treated in this manner. Bleeding may always be arrested by injections whether there is prolapse or not, but if the prolapse is constant and considerable, injections should not be attempted on account of the danger of rendering them irreducible because of edema and temporary swelling.

In an experience of several hundred injections, I can say that I have never seen a slough produced by the injections and only once have I caused any pain. There may be some transient discomfort and a feeling of fullness after the injection, but there should be no pain unless the anal mucosa below, or immediately at the papillae, has been injected. A great number of bleeding hemorrhoids, with or without mild prolapse, have been cured by injection treatment.

Remote emboli, or thrombosis, have never occurred in clinic or private practice. It is now a well-known fact which forms the basis of the injection treatment of varicose veins in the extremities that chemical injection of the veins produces a local adherent thrombus which does not separate as it may in a thrombophlebitis of toxic, or bacterial, origin. After both rectal and lower



limb injections, patients are ambulatory and about their usual duties immediately after treatment.

After giving trial to various substances, such as sodium salicylate, alcohol, protargol, silver nitrate, etc., I have come to the conclusion that phenol or urea and quinin hydrochlorid is the most useful and my personal preference is for phenol. I now use 20 per cent phenol, but in smaller doses than formerly with a 10 per cent solution. The phenol is a 20 per cent solution in glycerin and witch-hazel, the latter being a mild astringent to dilute the glycerin, which is not rapidly absorbed and is too thick of itself as a medium for the phenol. Three minims of this solution may be injected into each of three hemorrhoids at a sitting, and the treatment given every three or four days. As a rule, one injection will stop bleeding; four will cure the small hemorrhoids, and six the larger ones. For a mild prolapse, even more may be necessary.

External hemorrhoids cannot be injected by this method. Great pain and sloughing occur if this is attempted. These may easily be removed by the knife after injecting a few drops of novocain. It is often a difficult task in the surgical removal of internal hemorrhoids, complicated by external hemorrhoids, to demonstrate the line which separates skin from anal mucosa. This is partly due to the metaplasia which has occurred in the everted mucosa, giving it from exposure the character of true skin. It is more advisable to leave redundant skin than to remove too much around the anus, for this conduces to stricture at the orifice and it will be far better to remove any residual skin tags or external hemorrhoids some time later under a local anesthetic. Even if external redundant tissue is removed at the same time as large prolapsing internal hemorrhoids the part is so deformed when the latter are seized in the forceps that it is difficult to obtain what may be termed a good cosmetic result at one sitting.

*Fissures.*—Fissures occur both in children and in adults. In the former they are usually the result of an obstinate constipation alone whereby the hardened feces split the mucous membrane. They are usually amenable to stimulation by silver nitrate stick if the constipation is remedied. In adults, in addition to constipation, there is almost always an external hemorrhoid present and this is generally posterior, although it may be anterior. The fissure is longitudinal in the center of the pile, and is originally caused by the dragging on and splitting open of the lining of the hemorrhoid. It remains unhealed by being again wounded daily, as it were, so that the pile must be removed. Two other factors prevent healing: one is the reflex spasm of the external sphincter which is adjacent to or even invaded by the fissure, and the other is the lack of drainage owing to the cup-like retaining sentinel pile. Some divulse the sphincter, but I prefer myself to remove the pile, leaving a good draining area to the wound visible on the outside and incising through the whole muscle. A patient suffering from this intensely painful condition is extremely grateful for the

relief afforded by this means, and the drainage takes care of the rest. The sphincter heals without loss of continence which is not so certain when it is divulsed and perhaps split and damaged several times in its circumference which may happen if it is not to recover too soon and reproduce the spasm. The fissure should be packed twice daily with antiseptic gauze.

*Fistulae.*—Rectal fistulae arise from a variety of causes, both from some septic focus within or outside the rectum. An osteomyelitis of the sacrum; tuberculosis of the hip-joint; and pelvic suppuration may form channels into the rectum and externally, but these are not the common causes of fistulae as we see them. The latter arise in the rectum itself and usually near the junction of the two divisions of the anus, which appears to be the critical, or weak portion, of the lower part of the bowel. Many fistulae are preceded by an abscess which may point within the lower rectum or in the buttock near the anus. This is not always the case. The fistula found in those, usually younger individuals, with frank pulmonary tuberculosis whether it be a definite microscopic tuberculous lesion, or a pyogenic lesion in a tuberculous subject, is often a fistula from the beginning without a collection of pus heralding its onset. The intrarectal cause of fistula is damage to the mucosa and a subsequent invasion of the deeper structures without adequate drainage. Thus the ultimate result is a perforation of the skin of the buttock, if, indeed, this is not made surgically for the relief of an abscess.

*Abscesses.*—Abscesses may occur beneath the mucous membrane, usually near the anus but sometimes higher up. These are, therefore, superficial, and an adequate incision into the abscess will suffice to cause a permanent healing of the abscess. Otherwise the abscess will be outside the rectal wall and then it will lie above or below the levator ani muscle. This muscle, as mentioned above, is covered with pelvic fascia on its abdominal surface and above this is covered by peritoneum. An abscess above the peritoneum is pelvic and is commonly drained in women through the posterior vaginal fornix. In men it should be drained through the rectum if it points in this position. In other cases it is suitable to drain it above Poupart's ligament. The abscess may lie between the peritoneum and the levator ani muscle when it is a pelvirectal abscess, which at first points in the rectum and should be approached from this structure. But it may have ruptured through the levator ani muscle and then come to appear as if it were a primary ischio-rectal abscess, which takes a position below the levator ani muscle and points in the buttock rather than in the rectum. The primary ischio-rectal abscess should be opened through the buttock.

A careful digital examination and a knowledge of the anorectal region will give excellent information on the position of an abscess. Should this be draining into the rectum by an obvious flow of pus, this opening must be considerably enlarged



and packed for a few days when in the majority of cases the patient will be permanently relieved and cured. An external opening, should it be necessary, most often means a residual fistula.

It will be seen, therefore, that by no means all ischioirectal abscesses should be evacuated from the surface of the body. If it is deemed advisable to make an external incision, owing to the position of the abscess, such an incision must be a crucial one, each cut extending to the limits of the abscess cavity. In essence, an attempt should be made to form a saucer-shaped wound, comparatively shallow, and for this purpose skin should be removed so that the bottom of the cavity is seen and daily packed.

A fistula and not a sinus usually results from an abscess, although the internal opening may not be seen or discovered, and it might be remembered that external fistulous openings run into the rectum in front or behind according as they are anterior or posterior, respectively, to a line drawn horizontally through the center of the anus. In endeavoring to trace at operation such a tract, which is probably tortuous, it is far better to rely on the naked-eye appearance of diseased tissue, which is very obviously different from the surrounding normal tissue. Dyes injected, stain normal tissue as manipulation of the channel proceeds, obscuring the main and subsidiary tracts.

From what has been said of the anatomy of the sphincters, it will be seen that the answer to the question, "Will there be incontinence if the sphincters are cut across?" does not depend on the internal sphincter. We know that the external sphincter may on one occasion be severed cleanly in dealing with fistula and, owing to the internal being within and adjacent to the external sphincter, it must be severed with the latter. Undoubtedly incontinence results if the external sphincter is cut across obliquely so that the fibers do not join each to each, as it were, but the internal sphincter is not responsible. Rather it is the transverse incision of the levator ani where it slings up the rectum together with an irregular wound of the external sphincter in a pelvirectal abscess which may give this serious result. This may be avoided in a way I shall presently indicate.

The reasons for persistence of a fistula are an opening in the rectum discharging bacteria into the channel and infecting the granulating tissue and subsequently fibrosis of the area around the granulation tissue forming in late stages an almost cartilaginous thickening. The cause of failure to cure a fistula is mainly some unrecognized portion of the tract or branches of this tract.

I would give the following as a working rule in the treatment of fistulae. If the internal opening is below or at the insertion of the levator ani muscle, a director should be made to reach this opening by inserting it into the external orifice and then cutting upon it as it successively seeks the dark and flabby granulation tissue occupying the tract. The point of the director will then appear in the rectum when the director may be curved and be brought out at the orifice, all intervening tissue between it and the two orifices being

slit open on the director. This wound should then be well packed and the skin adjacent removed so that a wide gaping wound is formed which subsequently is packed twice daily with antiseptic gauze.

It is fortunate that most fistulae have an internal opening below the levator ani so that, though the sphincters are cut through, no incontinence results from the operation.

Two other types of fistula remain to be discussed: one in which there is an opening above the levator ani and the other, multiple fistulae. In the former, I prefer to make a saucer-shaped wound from the outside, enclosing in it the fistulous tract right up to the wall of the rectum. Then the mucous membrane is dissected from the orifice, as in a Whitehead operation for hemorrhoids, until the upper limit of the internal opening has been passed. The mucous membrane is then drawn down and stitched to the anal skin so that a tube of mucous membrane may be removed which includes the fistulous opening. In this way an intact lining is left and the wound from which the tract has been excised is left to heal without further infection from within the rectum and incontinence is not risked.

Multiple fistulae, that is, those with many external and sometimes with one or several internal openings can be cured with care and by radical incisions. The plan is to convert a multiple fistula into a simple one. When one external opening is followed, it will often be found in some part of its tract to meet the tract from another opening. These two, or more than two, must be connected together by a radical saucer-shaped wound which, upon healing, will leave but one external opening. If other external openings remain, the one resulting from the above procedure and these may similarly be united by following their tracts to a common meeting place. Finally, one has either two external openings with individual connections into the rectum or only one. In the first case the one fistula is slit up into the rectum and later on after healing of this, the second fistula is dealt with. If there is only one rectal opening the two external openings are first connected by this incision following their channels to the point at which they meet and then the common tract is opened into the rectum and the wound packed.

*Polypi.*—Polypi in the rectum are of two varieties—fibrous and adenomatous. The former are produced by some irritation in the upper part of the anal canal, whether this be due to infections and their discharge or to vascular stasis. They therefore accompany ulceration above or near this level, and their presence in the vicinity of hemorrhoids occurs without gross infection. They may also result in the degeneration of hemorrhoids and in the enlargement of anal papillae. I have seen the extremities of hemorrhoids drawn out into small polypi when the normal papillae were present at the same time, so that the polypi were not merely papillae encroached upon by the hemorrhoids. These fibrous polypi are covered by epithelium and have a fibrous stroma in which runs a central attenuated vessel. They usually remain innocent, but the view must be taken that any



excrescence of this kind covered by mucous membrane may become malignant by the constant irritation and passage of infected feces. The single adenomatous polyp occurs in children and is congenital, arising from remnants of the neurenteric canal. It is found on the posterior wall of the rectum. It tends to prolapse like a dark raspberry outside the anus, and is often mistaken by parents for hemorrhoids. It is easily removed by ligature and excision. Multiple polypi occur in both young adults and old people—more often in the former. They have a glandular structure like the infantile single type and are true adenomata. They may occur in hundreds from the rectum to the cecum, when they produce a discomfort in the colon not unlike that in diverticulitis, but accompanied by bleeding and diarrhea rather than constipation. They are of great significance since they are considered a precancerous lesion, and it is possible to demonstrate in some cases these or their small beginnings near cancerous growths, especially if these are multiple. So great is the probability of these polypi becoming malignant that the bowel containing them should be removed; that is, a colectomy is advisable if they are found throughout the colon. If they occupy the rectum alone and are accessible to manipulation, they should be cauterized away one by one.

I have endeavored to present to you certain facts concerning the more common surgical lesions of the rectum and anus as we see them, each represented by fair numbers. It may be that occasionally the treatment of these conditions is somewhat dogmatically stated, but one must have a working plan according to the results of one's experience, and this is what I hope I have clearly brought before you.

384 Post Street.

#### DISCUSSION

**WILLIAM H. KIGER, M.D.** (523 West Sixth Street, Los Angeles).—Doctor Woolf has given you a very thorough review of the anatomy of the rectum, and has presented the more common surgical lesions in a very clear manner. He has also stressed the importance of a thorough and careful rectal examination in all cases where blood is seen in the stool.

Regarding the treatment of hemorrhoids by injection. This is an excellent procedure in selected cases. I believe that about 50 per cent of the hemorrhoid cases are suitable for this method of treatment. Personally I prefer the quinin and urea method as advocated by Doctor Terrell.

There is another point that should be stressed, and that is, the effect of lesions in the anal canal on the entire digestive tract. You might just as well expect to have a good sewerage system with the outlet stopped up as to expect the bowel to function properly with its outlet not working properly. The rectum may be plugged by large hemorrhoids that have to be forced out of the way before anything can pass, or there may be an irritable ulcer or fissure that causes the muscle to be in constant spasm. When such conditions are found, you will be surprised at the number of cases that will clear up if the rectal condition is corrected. If these points are considered you will save many patients the trouble and expense of a complete gastro-intestinal study.

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**DUDLEY SMITH, M.D.** (909 Hyde Street, San Francisco).—Accurate diagnosis and correct treatment of the commoner diseases of the rectum is so uncommon

that Doctor Woolf should be commended for again bringing the subject to the attention of the profession. Accurate diagnosis depends upon careful examination and, of course, correct treatment depends upon accurate diagnosis. Although the technique of examination is easily acquired comparatively few doctors have made themselves familiar with it, and therefore much disease in this region is overlooked. It cannot be too often emphasized that disease in the rectum may progress to an astonishing degree without symptoms and that polypi are definitely precancerous lesions. If polypi and other lesions are discovered early and removed, many cases of cancer will be prevented. Symptoms of cancer of the rectum rarely arise until the lesion has been present for months. Gradually increasing constipation is sometimes a fairly early symptom when the growth is at the rectosigmoid junction. Bleeding is a comparatively late sign and should always demand complete proctoscopic examination. If the source is not then discovered, barium enema and the x-ray should be used. Moreover the existence of hemorrhoids or other lesion in the anal or ampullar region should not be regularly considered the source of the bleeding, but search should always be made for any possible lesion higher up.

Many cases of chronic constipation are due to causes that may be discovered by careful rectal examination, and yet it is common practice to treat constipation without examination. In no other region of the body is this neglect so frequent. No case of chronic constipation ought ever to be treated without first correcting or ruling out local causes.

Doctor Woolf is entirely right in frowning upon divulsion of the sphincter in anal fissure and ulcer, but in my experience much more rapid healing has been secured, and with the avoidance of much unnecessary pain, when the wound has not been packed with gauze after excision. The same is true regarding the packing of wounds after fistulectomy. After the first dressing is removed the wound should not be packed. A vaselined applicator should be passed through the wound daily to prevent bridging, and this occasions very little pain. My patients have liked me better since I stopped packing these wounds with gauze.

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**LLOYD A. CLARY, M.D.** (1195 Bush Street, San Francisco).—Doctor Woolf treats a wide subject in a short space. Two of the very common anal conditions he mentions, cryptitis and papillitis, but does not give treatment. Infected crypts can be excised in the office under local anesthesia quite easily. Enlarged, inflamed papillae, the cause of spasticity of the sphincter so frequently, can be removed in like manner.

I agree that incision of a fissure through the muscle is vastly preferable to divulsion.

In the treatment of fistulae, whether single or multiple tracts, I much prefer excision of the entire diseased area at one sitting. The use of the Percy cautery in this condition has been highly satisfactory to me. I am radical as to excision of fistulae and not backward in sacrificing tissue. Healing is surprisingly fast, with little scar tissue resulting.

Polypi in the rectum above the anal canal may be destroyed easily by fulguration, without pain, as the urologist destroys bladder polypi. If in the anal canal they can be removed in the office with an office cautery after injecting base with local anesthetic. The cautery makes this practically a bloodless procedure.

Doctor Woolf is right in having a working plan. However, I do not recall seeing two cases, even of hemorrhoids, exactly alike. There are variations in treatment that must be applied in practice. We are too prone to speak of the "treatment of hemorrhoids," for example, as an entity. Our object should be to clear up the rectal condition completely if possible.

Doctor Smith mentions rectal conditions as a cause of constipation. I am heartily in accord. No prescription should be given, no treatment instituted, for con-



stipation without first examining the rectum. One of the most valuable operations I know of is a posterior proctotomy to enlarge a small anal canal. It is astonishing how many cases of constipation can be cured by this procedure. I believe that fully 25 per cent of constipation cases have a rectal cause.

Agreeing with Doctor Kiger's statements regarding rectal causes of intestinal disorders I would stress rectal examination in all cases of constipation, flatulence or obscure intestinal disorder. Many functional colonic troubles with attendant pain and discomfort vanish after some anal pathological condition is corrected. It is foolish to fill the intestinal tract with bismuth before this examination is made. It may take a week before the bismuth can be cleaned out sufficiently so that such an examination can be made. Examine the rectum *first*.

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DOCTOR WOOLF (closing).—The more I am engaged in the practice of surgery of the rectum the more I am impressed with its importance. The rectum is often casually dismissed from a general and otherwise comprehensive examination so that an ulcer, a polyp, or a malignant growth may be left undiagnosed. The examination of the rectum both digitally and instrumentally, as Doctor Smith says, is a simple procedure. On the contrary, some of the surgery which has been thought to be of a minor nature, such as the operations for hemorrhoids or fistula, may often require the most expert attention, and the surgical treatment of multiple fistulae may be classed under major surgery. The fistulae I referred to as requiring several stages, before final and complete healing was obtained, were those with many external and perhaps several internal openings, the so-called "watering-pot" variety. I think Doctor Clary would not care to excise the whole area of such fistulous tracts at one operation, since one would have to excise half the buttocks and part of the rectal wall.

### RATTLESNAKE BITE\*

By J. FRANK DOUGHTY, M. D.

Tracy

DISCUSSION by Miley B. Wesson, M. D., San Francisco; John J. Sippy, M. D., Stockton; Herbert Gunn, M. D., San Francisco.

HIKING and camping have become so universal since the popular use of the automobile that the hazard of snake bite has become increasingly frequent. Rattlesnakes are widely distributed throughout the United States, and may be encountered by the individual who is out-of-doors in pursuit of his occupation or recreation.

Due to the rarity of reports of fatal cases from rattlesnake bite in the medical literature, the current opinion has developed that death from this cause does not occur. Wilson,<sup>1</sup> from 566 cases of snake bite, isolated 408 of the rattlesnake and tabulated twelve which were fatal. Nineteen fatal cases reported in the literature have been collected in this investigation.

#### REPORT OF TWO FATAL CASES

CASE 1.—A three-year-old boy was bitten three times in the left leg by a rattlesnake (Fig. 1) of the species *Crotalus Oreganus*, February 28, 1927. Within a few minutes the father ligated the leg above the wound and brought the boy seven miles to my office. This required about half an hour. The largest of the wounds was sucked continuously during this time.

The patient's face was flushed, but soon became pale, and a cold sweat appeared. There were a few



Fig. 1.—A photograph of the snake which bit the patient in Case 1.

muscular twitchings of the face. The pupils were contracted. The patient was conscious, but had periods of lethargy followed by excitement.

The leg below the ligature was swollen and ecchymotic around the whole anterolateral aspect, but especially purple around the larger bite. There were three pairs of puncture wounds on the anterior aspect of the leg, the highest about two inches below the knee (Fig. 2). This wound was large enough to appear as two small lacerations each about .2 cm. long and 1 cm. apart, and they were bleeding freely. The other two wounds were apparently superficial and did not bleed very much.

The ligature was left in place and all three wounds deeply opened by a cross-incision and undercutting of the edges. Crystals of potassium permanganate were then applied and carried into every recess of the wound by the knife. Later the ligature was released intermittently and left off entirely at the end of two hours. The only antivenom available was that of the Pasteur Institute, for European pit vipers. This was ordered immediately and 10 cc. was administered as soon as received, which was six hours later. One grain of caffein sodium benzoate was given hypodermically every half hour.

The patient became progressively weaker, the extremities becoming cold, the respiration more rapid, and the coma more profound but punctuated by lucid intervals. The respiration finally became of the Cheyne-Stokes type and failed entirely twelve hours after the bites were received. The pulse was palpable several minutes after the complete cessation of respiration.

At the time of death the whole lower extremity from foot to hip was immensely swollen and ecchymotic.

CASE 2.\*—March 18, 1928, a twenty-year-old girl was bitten on the dorsum of the right foot by a rattlesnake. An improvised ligature was applied above the wound, and she was seen by a physician about an hour and a half later. The foot and leg were considerably swollen and the foot was dark in color. The heart action was good. An incision was made through each fang wound and considerable discolored blood

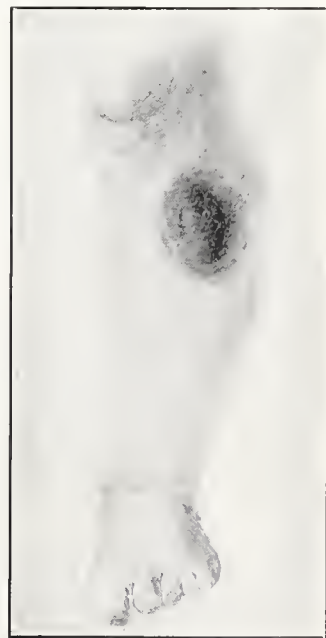


Fig. 2.—Drawing of leg of three-year-old patient in Case 1, showing immense swelling and the ecchymosis around the largest of the three bites.

\*Read before the General Medicine Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

\*This case is reported through the courtesy of Dr. S. W. Cartwright of San Andreas, and Dr. R. L. Owen of Lodi, California.

escaped. The patient was then carried down the mountain and arrived at the hospital about two and a half hours after she was bitten. Ten cubic centimeters of antivenin were given subcutaneously, and the ligature was intermittently released and then removed. She remained in good condition and, after an hour's observation, was allowed to be taken home in an automobile, a distance of about fifty miles.

She arrived home about five hours after the bite was received and was immediately placed under the care of a physician. At this time she was greatly excited. Her respirations were 28 per minute and pulse 95, full and regular. The right foot and leg to the knee were greatly swollen and purplish in color. The leg was hyperesthetic. The patient complained of excessive thirst and abdominal cramps. There was a slight twitching of the abdominal muscles visible at times.

The leg was lowered, another incision was made and hot applications maintained. Fluids were administered freely. The patient became quiet and went to sleep. The color of the leg gradually improved. About 10 p. m., eight hours after the accident, the patient vomited and complained of severe abdominal cramps. She was very pale and somewhat cyanotic; respirations 35 per minute, and pulse 125. There was a numbness creeping upward from her feet to her trunk. At this time the right leg was anesthetic to a point about six inches above the knee and was again immensely swollen and purplish.

The general condition of the patient grew gradually worse. The pulse rate became more rapid and the skin anesthesia more generalized. Adrenalin, camphorated oil, and caffein sodium benzoate were given hypodermically, but the patient continued to sink and died about seventeen hours after the bite. She remained mentally clear until five minutes before death. (Table 1.)

#### MECHANISM OF THE BITE

The fangs which are appended to the anterior part of the maxilla have a perfect canal through which the poison is ejected from the poison gland by muscle fibers connected with the fibrous capsule of the gland. The gland is placed in such a manner that when these muscles contract in the act of biting, the poison is synergically ejected. The fangs in the snake causing the accident in Case 1 (Fig. 1) were three-fourths inch long when passively exposed. A snake bite is analogous to a hypodermic injection capable of penetrating the length of the fang. The poison may be injected subcutaneously, intramuscularly, or intravenously.

#### THE PHYSIOLOGICAL ACTION OF VENOM

The physiological action of rattlesnake venom has been classified as: (1) neurotoxic; (2) agglutinant and hemocytolytic;<sup>13</sup> (3) cytolytic; (4) thrombopoietic; (5) antibactericidal.<sup>9</sup>

#### PREVENTION

Leather shoes and puttees worn when in a snake-infested area will prevent a large percentage of snake bites, as most bites occur on the lower extremities.

#### NONSPECIFIC METHODS OF TREATMENT

1. Methods which attempt to withdraw the poison from the part, usually by cupping or suck-

ing. Obviously this is inefficient because of the great affinity of the venom for cells and the rapidity with which it is fixed.<sup>10</sup>

2. Ligation above the bite, thus impeding the penetration of the poison into the blood. This does not prevent the spreading of the poison by infiltration and contiguity of tissue, but it is a temporary and valuable first-aid measure.

3. Efforts to destroy the poison *in situ*: The principal agents used for this purpose have been potassium permanganate, chromic acid, gold chlorid, and chlorin compounds. Even if these substances completely destroyed the venom, which they do not, the rapid absorption of the venom makes their use very limited.<sup>10</sup>

#### SPECIFIC THERAPY

Snake antitoxin was first produced by Calmette in 1894 by injection of venom into the horse.<sup>11</sup> Numerous other investigators have produced specific antivenomous serums. One of the leading investigators in the United States at this time is Afriano do Amaral. In other countries numerous institutes produce the antivenom in quantity, and it has proven of great value.<sup>9</sup> To be effective it must be produced by an animal immunized to the poison of the *species* of snake causing the accident.

Until recently the serum has been produced in such small quantities and was kept so far removed from the scene of the accident that administration early enough to be effective was impossible.

The effectiveness of the serum depends upon (1) the specificity for the species; (2) early administration; (3) adequate dosage.

#### PROGNOSIS

The prognosis depends upon: (1) The toxicity of the venom. (2) The relation existing between the quantity of poison injected and the size and resistance of the individual.<sup>12</sup> (3) The early administration of the specific antivenom in adequate dosage.

#### SUMMARY

Two fatal cases of rattlesnake bite are reported. Case 1 did not receive the specific antivenom. Case 2 received the specific antivenom, but the dosage was not given in sufficient amount. Antivenom in inadequate dosage is not curative any more than is diphtheria antitoxin in too small amount. As in the administration of any antitoxin the adequacy of the dosage is determined by the response of the patient. The dose should be repeated if the patient is not improved in three to five hours.

#### CONCLUSIONS

1. Local treatment is inefficient, but ligation is a valuable first-aid measure.
2. Mortality up to the present time has de-



TABLE 1.—A Tabulation of Nineteen Fatal Cases of Rattlesnake Bite Collected from the Literature

| REPORTER                      | CASE                | WOUND       | DURATION   | LOCAL SYMPTOMS                         | CONSTITUTIONAL SYMPTOMS                                                                                                                                             | TREATMENT                                                                                                              | POSTMORTEM AND REMARKS                                                                                                                                                               |
|-------------------------------|---------------------|-------------|------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Phorell <sup>1</sup>       | Male 50 years old   | Hand        | 9 hours    | Swelling ecchymosis pain               | Prostration, rapid and weak pulse, dysphagia, dyspnea, contracted pupils, mind clear.                                                                               | Prompt ligation cauterized in 18 minutes, olive oil, leeches.                                                          | Fluid in cerebral sinuses, blood in bitten arm coagulated, trachea and bronchi congested, death 9½ hours after bite.                                                                 |
| 2. Horner <sup>1</sup>        | Adult male          | Elbow       | 18 hours   | Swelling ecchymosis pain               | Vomiting, fecal incontinence, abdominal pain, one convulsion, great prostration.                                                                                    | Local blood-letting, ammonia, oil.                                                                                     | Serous exudate beneath cerebral arachnoid, gastric mucosa congested, liver enlarged, local infiltrations. Patient intoxicated when bitten.                                           |
| 3. Clarke <sup>1</sup>        | Male 50 years old   | Hand        | 24 hours   | Swelling ecchymosis pain               | Weak pulse, dyspnea, dysphagia, numbness, tremor, somnolence, twitching right thumb and left leg, epistaxis.                                                        | None.                                                                                                                  |                                                                                                                                                                                      |
| 4. Post <sup>1</sup>          | Male 40 years old   | Finger      | 5 hours    | Swelling ecchymosis blood spurted      | 3rd hour coma, pulse absent                                                                                                                                         | Prompt suction, excision in ½ hour, cauterized, ligation, brandy, ammon. carb.                                         | Death 5 hours.                                                                                                                                                                       |
| 5. Alexander <sup>1</sup>     | Child               | Heel        | 18 hours   |                                        | Fatal collapse after removal of ligation, 16 hours after bite.                                                                                                      | Ligation, whiskey.                                                                                                     | 16 hours after bite, death occurred.                                                                                                                                                 |
| 6. Shapleigh <sup>1</sup>     | Adult male          | Finger      | 40 minutes | Twitching                              | Excitement, coma, dyspnea                                                                                                                                           | Nitric acid in 2 minutes after bite. Incision, ligation in 20 min. alcohol.                                            |                                                                                                                                                                                      |
| 7. Rivers <sup>1</sup>        | Male 7 years old    | Arm         | 3 hours    |                                        | Vomiting, restlessness, coma, muscle spasm, leg.                                                                                                                    |                                                                                                                        |                                                                                                                                                                                      |
| 8. Comfort <sup>1</sup>       | Male 8 years old    | Hand        | 17 hours   | Gangrene swelling ecchymosis pain      | In 4 hours, ptosis, delirium, blindness, pulse feeble, temperature 98.6, vomiting, diarrhea, frequency urination, paresis both arms, pain, convulsions.             | Prompt ligation, whiskey, ammonia, ligation loosened in 7 hours.                                                       |                                                                                                                                                                                      |
| 9. Spalding <sup>1</sup>      | Adult male          | Hand        | 27 hours   | Gangrene swelling ecchymosis pain      | Syncope, restlessness, vomiting, dyspnea, fecal incontinence, bloody stools, dilated pupils, weak pulse, marked prostration, heart failed first.                    | Incision, whiskey.                                                                                                     | Congestion brain and meninges, lungs, 1 oz. blood in each pleural cavity. Stomach congested, contained blood. Extravasation in arm and right side to groin. Death fifth day; sepsis. |
| 10. Brewer <sup>1</sup>       | 7 years old         | Finger      |            | Gangrene swelling ecchymosis pain bleb | By days: first, twitching, dyspnea; second, delirium, trismus, high arterial tension, fever, pain; third, better; fourth, fall temp., swelling spreading over body. | Prompt ligation, excision, whiskey, strychnin.                                                                         |                                                                                                                                                                                      |
| 11. Crouse <sup>1</sup>       | 5 years old         | Hand        | 6½ hours   |                                        | Prostration, dyspnea, pulse 162, rales in lungs, pupils contracted, vomiting, retention of urine, convulsions, temp. 97. Collapse after removal of lig.             | Ligation in 20 minutes, potassium permanganate, strychnin.                                                             |                                                                                                                                                                                      |
| 12. Lewis <sup>1</sup>        | Male 14 years old   | Leg         | 6 hours    | Gangrene swelling ecchymosis pain bleb | Rapid, weak pulse, vomiting, dyspnea, diarrhea, cold skin.                                                                                                          | Prompt ligation, suction carbolic dressing, strychnin, adrenalin, ammonia, whiskey, strychnin, potassium permanganate. | Death 18 hours.                                                                                                                                                                      |
| 13. Crutcher <sup>2</sup>     | 7 years old         | Arm         | 5½ hours   | Swelling, vesicles                     |                                                                                                                                                                     |                                                                                                                        |                                                                                                                                                                                      |
| 14. Comptom <sup>3</sup>      | Adult female        | Arm         |            | Swelling                               |                                                                                                                                                                     | "Usual antidotes."                                                                                                     | Death 18 hours; intoxicated when bitten.                                                                                                                                             |
| 15. Driver <sup>4</sup>       | Female 12 years old | Leg 2 bites | 1½ hours   | Swelling to groin, pain, ecchymosis    | Excitement, redness of eyes, prostration, vomiting.                                                                                                                 | Onion poultice, ligation, whiskey, incision, bichlorid, potassium permanganate injected; strychnin, whiskey.           | Respiration failed first.                                                                                                                                                            |
| 16. Thomas <sup>5</sup>       | Male 5 years old    | Foot        |            | Swelling to groin, pain, ecchymosis    | Cold skin, dyspnea.                                                                                                                                                 |                                                                                                                        | Died in 10 minutes.                                                                                                                                                                  |
| 17. Blackwood <sup>6</sup>    | Male 36 years       |             |            |                                        |                                                                                                                                                                     |                                                                                                                        |                                                                                                                                                                                      |
| 18. Daggett <sup>7</sup> 1917 | Adult male          | Hand        |            | Swelling ecchymosis pain               | Hemoptysis, hematuria, vomiting, tremor, weak pulse.                                                                                                                | Ligation, potassium permanganate injected, saline and adrenalin intravenously, a serum 12 hours after bite.            |                                                                                                                                                                                      |
| 19. Home <sup>8</sup>         | Adult male          |             |            |                                        | Cardiovascular depression, vomiting.                                                                                                                                | Potassium permanganate, caustics, ligation.                                                                            | Died seventeenth day.                                                                                                                                                                |

pended largely upon the relative amount of venom injected by the snake's bite.

### 3. There is a specific antivenom.

231 West Eleventh Street.

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#### DISCUSSION

MILEY B. WESSON, M.D. (1275 Flood Building, San Francisco).—Doctor Doughty's paper, which is almost classical in its brevity and completeness, emphasizes three points: (1) rattlesnakes are common in California; (2) rattlesnake bites cause death in both children and adults; and (3) antivenin will not prevent death unless the dosage is adequate.

There is a certain amount of mystery and glamour about rattlesnakes, and most doctors, as well as laymen, are in doubt as to how poisonous they really are. In the old days every side-show had at its entrance a box of rattlesnakes, and a Gila monster in a glass case, and the barker loudly informed the public that this reptile was so venomous that even its breath was a deadly poison. I have never yet been able to find out whether or not a Gila monster's bite is dangerous. At rare intervals articles have appeared in the newspapers reporting deaths following such, and each time I have written to the county health officer, only to find that there was no record of such bite or death. There are undoubtedly doctors who do not know that a rattlesnake bite is fatal to an adult. Doctor Doughty has corrected that error.

When a student in zoölogy I had the privilege of dissecting a rattlesnake head that measured about three inches in diameter, and there I found twenty-eight sets of fangs, so he had plenty of spare ones to replace any that might be torn out. In addition to the poison fangs there is a row of curved teeth, and the large snakes can bite as severely as a dog. The fang is hollow like a hypodermic needle, and the mature ones set on a tilting base so that they can be pushed forward and backward. When at rest the fangs lie against the roof and are buried in the mucous mem-

brane, just as the blade of a pocket knife is closed into the handle. When preparing for action the sphenopterygoid muscle contracts and pulls forward the all-important quadrate bone, thereby imparting the motion to the external pterygoid, and in turn to the superior maxillary, thus pushing forward the fangs. After the strike the process is reversed, and the bone tilts the opposite direction so as to assist in holding and burying the fangs deep in the object while the poison is being injected.

The poison glands occupy the general position of the parotid glands in a human being, but are covered by the temporal and external pterygoid muscles, and the contraction of these compress the sacs and squeeze out their contents. The poison duct does not connect directly with the fang, but empties into a small open space on the opposite side of which is the hollow tooth. When a fang is torn out a second one slips into place, just as by merely moving the turntable in a roundhouse a connection for an engine is made directly with the main track.

Those who handle rattlesnakes with impunity not only slit the poison sacs and swab them out frequently with hydrogen peroxide or some similar preparation, but also keep the fangs torn out. This is done simply by flipping a silk handkerchief at a snake's head. When he has struck and entangled his fangs, the handkerchief is jerked away and the fangs are torn out. This should be repeated daily, for though some believe that it takes at least one week for new fangs to develop, or for a new supply of poison to be generated, there is always the danger of having a precocious reptile to handle. Taking such chances results in "accidents," for although the Hopi Indians usually handle rattlesnakes with impunity, and snake charmers are often bitten by rattlesnakes with no untoward results, yet deaths among them occasionally do occur.

Antivenin is a polyvalent serum and is a remedy for the venom of North American rattlesnakes, moccasins and copperheads. A 10 cc. dose is ordinarily efficacious, but if the patient still shows any bad effects a few hours after it has been administered the dose should be repeated. No one in this day expects to cure diphtheria with one injection of 500 units of antitoxin, then why expect to cure snake-bite with one 10 cc. dose of antivenin.

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JOHN J. SIPPY, M.D. (San Joaquin Local Health Center, Stockton).—It is probable that the failure of some patients to react to antivenin is due to insufficient dosage, and we shall have to learn, as we have in the use of antidiphtheritic serum, that the size of the dose will have to be gauged by the promptness of administration, that is, with every hour of delay the dose must be increased.

Physicians have a duty in this subject, not only to inform themselves, but also to see that the public has accurate and sane knowledge. Prevention is more important than treatment, and the public needs to be taught something of snake habits and periods of virulence, avoidance of snake haunts, and proper clothing protection. Woodsmen and workers on snake farms, for instance, while they learn instinctive vigilance, depend largely upon knee-high boots, or leather leggings, for snakes, under usual circumstances do not strike higher than the knee. Personally, I am wondering that if, as a public health official, I had manifested the same interest in the subject as Doctor Doughty and passed on his knowledge to the public, one of the two deaths which have occurred in San Joaquin County in the past year might not have been avoided.

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HERBERT GUNN, M.D. (350 Post Street, San Francisco).—Doctor Doughty's article is a very interesting and comprehensive discussion of rattlesnake bites.

This is a particularly interesting subject to most Californians because at one time or another nearly all of us go out into the country, and rattlesnakes are more or less prevalent all over the state. One



point that was particularly impressed upon me was the necessity of having antivenin serum available for use of those who may be injured. This is especially important in view of the fact that the serum is extremely expensive and for this reason will not be generally carried by campers and hikers. A supply should be on hand at certain definite points, and the location of these points should be widely advertised. County seats if supplied could be reached from most points within a few hours. Better still would be judiciously stocking the forest rangers so that inquiry from any ranger would immediately locate the whereabouts of a fairly nearby supply of serum.

I believe thoroughly that the serum if used in sufficient quantity is efficacious, but personally I would resort to ligature just as Doctor Doughty does and, in addition, would practice the old treatment of puncture producing as free bleeding as possible.

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DOCTOR DOUGHTY (closing).—The mortality in sixty-seven collected cases of rattlesnake bite reported in Texas was 34.3 per cent where antivenin was not used. In eighty-three cases treated with antivenin the mortality was 6 per cent. The fatalities in this series probably could have been avoided, had it been possible to give the serum earlier.

Specific treatment of rattlesnake bite by antivenin should not be omitted because one may have *faith* in local measures which are *not* specific. The many first-aid kits made for the use of the layman give a sense of false security and do not urge the public to seek early administration of antivenin. The knowledge of the availability and specificity of this serum must be disseminated by the general practitioner.

## TUBERCULOUS INFECTION—ITS INCIDENCE IN A GROUP OF CHILDREN OF ORIENTAL PARENTAGE\*

By LLOYD B. DICKEY, M. D.  
San Francisco

DISCUSSION by Harold K. Faber, M. D., San Francisco;  
William C. Hassler, M. D., San Francisco; William H.  
Happ, M. D., Los Angeles.

THE tuberculin skin reactions of Pirquet<sup>1</sup> and Mantoux<sup>2</sup> have been the accepted methods of determining the incidence of tuberculous infection in childhood since these discoveries were first announced.

### PIRQUET AND MANTOUX REACTION STATISTICS

The high incidence of infection among the poorer Viennese children of 12 to 14 years of age, 81.5 per cent as reported by Pirquet<sup>3</sup>, and 94.3 per cent as reported by Hamburger and Monti<sup>4</sup> for hospital children gave rise to the impression that tuberculous infection was nearly universal by the time children had reached the age of puberty. Later statistics compiled by Hoffa<sup>5</sup>, Barchetti<sup>6</sup>, and others, from different European cities deepened this impression, although the percentages of infections reported were not as high.

Veeder and Johnston<sup>7</sup> found 48 per cent of hospital children infected between the ages of 12 to 14, and concluded "that the percentage of positive tuberculin reactions among children of

relatively the same social conditions was much lower in St. Louis than in Vienna." They further concluded that "the extent of infection among children varies in different cities and countries and is dependent on such factors as living and social conditions, the amount of tuberculosis in the community, the exposure of the child to open tuberculosis, and in all probability varies among different classes of society in the same community."

Conclusions such as the above are proved to be sound by comparing the report of Sill,<sup>8</sup> who found 48 per cent of children from 10 to 13 years to be infected, with the results of Slater<sup>9</sup>, who found only 12 per cent infected in the 12 to 14-year group. Sill's patients were selected from the lower east side of New York City, were children mostly of parents of foreign birth and with negative histories of exposure. Slater's tests were done on children "in a rural community, in which economic and hygienic conditions are unusually good." In this series the percentage of children infected did not increase with the increase in age.

### SKIN REACTIONS IN INDIANS

Few reports in the literature have appeared to determine the incidence of tuberculous infection in other than in children of the white race. Ferguson<sup>10</sup> tested 162 Indian children of school age in Saskatchewan, and found 92.5 per cent to react positively to tuberculin tests. The high mortality rate in North American Indians from tuberculosis is, of course, well known, and Ferguson's results are not surprising in view of what is known about adult tuberculosis in the red race. Possibly a relatively large percentage of Veeder and Johnston's patients were of the negro race.

### TUBERCULOSIS IN ORIENTAL RACES IN CALIFORNIA

The problem of tuberculosis in the Oriental races is of special interest in San Francisco, due to the large numbers of these peoples residing within the city. Members of the Oriental races are limited mostly in their residence to two different parts of the city, the Japanese section, and San Francisco's Chinatown. The latter is probably the largest Oriental section in the Occident. Figures compiled by the Department of Public Health<sup>11</sup> show that 24 per cent of all the Chinese deaths in 1926 were due to tuberculosis, a rate of 459 per 100,000 population, as compared with a rate of 99.3 per 100,000 for the rest of San Francisco.

From these figures, and from the fact that the Orientals are known to live in very congested quarters, it would be suspected that the incidence of tuberculous infection among children of the yellow race, as revealed by tuberculin tests, would be correspondingly high as compared with the incidence of infection in the children of the city at large.

During the course of a study undertaken for the San Francisco Tuberculosis Association<sup>12</sup> it was found that about 25.2 per cent of 500 children in that community reacted positively to the intracutaneous tuberculin test, a dosage of

\* A preliminary report to a more intensive study of tuberculosis in the same group of children.

From the Department of Pediatrics, Stanford University Medical School, San Francisco.

1/10 mg. of K. O. T. being used. In the 12 to 14-year group the percentage was about 42.6. In general there was shown to be a steady rise in the percentage of children reacting positively, proportionate to the age of the patients, (Table 1).

In a smaller series of Oriental children, including both Chinese and Japanese, a similar study has been made of the incidence of infection, using the same amount of tuberculin for testing. The study, however, has extended over a considerably longer period of time than was taken for a study of the first 500 children at large. This was because the attendance at the Stanford Children's Clinic of Oriental children is small as compared with the general average attendance. We do not feel that the two series are exactly comparable as it is well known that the Chinese and Japanese parents bring very few normal children to the clinic. The first study was made on unselected children who visited the clinic, and included both sick children, some of whom were later hospitalized, and well children who came for such treatments as vaccinations and toxin-anti-toxin immunizations. All of the Oriental children studied visited the clinic because of some definite complaint, although some of them were minor ones.

Because of the above facts we expected our series of Oriental children to show a higher incidence of infection than proved to be the case when the series was analyzed. The age incidence of infection is tabulated in Table 2.

Charting this incidence graphically (Chart 1),

TABLE 1\*—According to Age and Sex

| Age      | —Male—   |          |      | —Female— |          |      | —Total—  |          |      |
|----------|----------|----------|------|----------|----------|------|----------|----------|------|
|          | No. done | No. pos. | %    | No. done | No. pos. | %    | No. done | No. pos. | %    |
| Under 4  | 47       | 8        | 17.0 | 62       | 4        | 6.4  | 109      | 12       | 11.0 |
| 4 to 8   | 98       | 24       | 24.5 | 95       | 22       | 23.2 | 193      | 46       | 23.8 |
| 8 to 12  | 81       | 26       | 32.1 | 63       | 19       | 30.2 | 144      | 45       | 31.2 |
| 12 to 14 | 31       | 14       | 45.2 | 23       | 9        | 39.1 | 54       | 23       | 42.6 |
| Totals   | 257      | 72       | 28.0 | 243      | 54       | 22.2 | 500      | 126      | 25.2 |

\* From Seitz and Dickey.<sup>12</sup>

TABLE 2—According to Age and Race

| Age      | —Chinese— |          |      | —Japanese— |          |      | —Total—  |          |      |
|----------|-----------|----------|------|------------|----------|------|----------|----------|------|
|          | No. done  | No. pos. | %    | No. done   | No. pos. | %    | No. done | No. pos. | %    |
| Under 2  | 9         | 0        | 0.0  | 10         | 0        | 0.0  | 19       | 0        | 0.0  |
| 2 to 4   | 8         | 2        | 25.0 | 11         | 3        | 27.3 | 19       | 5        | 26.3 |
| 4 to 8   | 21        | 7        | 33.3 | 24         | 11       | 45.1 | 45       | 18       | 40.0 |
| 8 to 12  | 9         | 4        | 44.4 | 16         | 9        | 56.2 | 25       | 13       | 52.0 |
| 12 to 14 | 7         | 4        | 57.1 | 4          | 2        | 50.0 | 11       | 6        | 54.5 |
| Totals   | 54        | 17       | 31.5 | 65         | 25       | 38.5 | 119      | 42       | 35.3 |

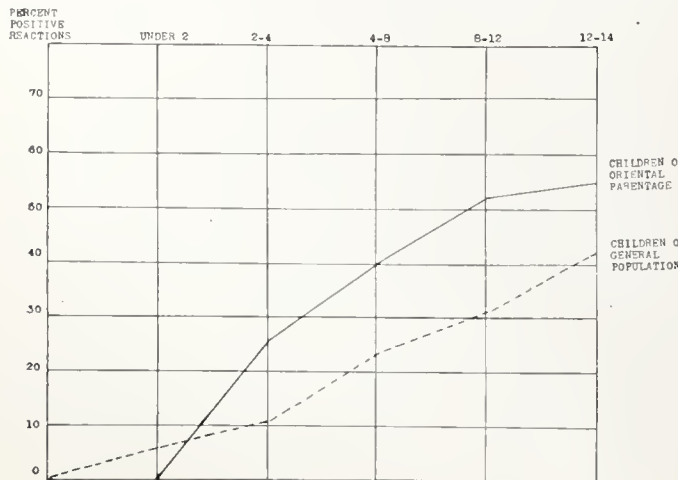


Chart 1—Age Groups.

a steady rise in the percentage of positive reactions is revealed, in general coincident with the advance in age. Nineteen children (nine Chinese and ten Japanese) under 2 years of age were tested, none of whom gave positive reactions. The curve for the incidence in Chinese children, if charted, parallels that for the children of the general population quite closely, but is only slightly, though definitely higher. It is not so high as one would expect from the type of Chinese child visiting the clinic, and from the fact that the mortality from tuberculosis among Chinese is about 4½ times that of the rest of the population in San Francisco.

The Japanese are seen to have a considerably higher incidence of tuberculous infection for all age groups as compared with the child population at large, and as compared with the Chinese, except the 12 to 14-age group, where the number tested was comparatively small.

CONCLUSIONS

1. In a series of 119 children of various ages up to 14, all of Oriental parentage, there was an incidence of tuberculous infection, as revealed by intracutaneous tuberculin tests, of 35.3 per cent.
2. The incidence for Chinese children was 31.5 per cent; for Japanese, 38.5 per cent. While both of these figures are definitely above the 25.2 per cent of infection of the child population at large for the same city, it must be remembered that the mortality rate from tuberculosis among the Chinese in San Francisco is 4½ times that of the rest of the city, and probably for the Japanese is about the same. Hence the incidence of tuberculous infection reported among children of Oriental parentage is lower than might have been anticipated.
3. No explanation is offered for this observation. It might possibly be explained on the basis of improved hygienic conditions which present day Oriental children in California are enjoying over their parents, or over what their parents were subject to at the time when they were children.

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#### DISCUSSION

HAROLD K. FABER, M. D. (Stanford University Medical School, San Francisco).—This admirable study by Doctor Dickey forms part of a program instituted and supported for nearly three years by the San Francisco Tuberculosis Association for the purpose of studying the incidence of tuberculosis among the children of San Francisco. The work has been of the utmost interest and of both practical and theoretical importance. A previous report showed that instead of the 70 or 80 per cent assumed on the basis of earlier reports from other localities, less than 50 per cent of children, today and in this locality, under the age of 14 years, show evidence of tuberculous infection. Now it is shown that in that racial section of the community certainly most heavily infected with tuberculosis, a section subject to the unfavorable influences of overcrowding and other elements of faulty hygiene, the children have only a moderately higher frequency of infection than the community as a whole. This is striking corroboration of the general truth that the battle against tuberculosis is fast being won. It is not necessary to enter into the controversy which is being waged over the causes of the general decline of the disease. In the case of the Oriental children one may point to such possible factors as second generation adaptation to American conditions, and to increased prosperity; more important, I think, is the probability that the educational campaign for better personal hygiene, for the out-of-doors life, for more milk, for better housing and ventilation, for more wholesome living in general is having its effect here, too, perhaps more slowly than with the rest of the population but nevertheless to a creditable and increasing extent. That the incidence is at all higher among the Oriental children than among the rest clearly points the direction in which special efforts should be made in the campaign against the disease, not only for the sake of the Orientals themselves but for the sake of the community as a whole.



WILLIAM C. HASSLER, M. D. (1085 Mission Street, San Francisco).—This preliminary report of Doctor Dickey on the incidence of tuberculous infection in a group of children of Oriental parentage, as shown by the reaction of Mantoux, is extremely interesting to those working with tuberculosis in San Francisco on account of the large Oriental population. One would suppose, as Doctor Dickey has brought out, that on account of the very high Chinese death rate from tuberculosis the incidence of infection, as shown by the tuberculin test, would be in the same proportion, whereas his figures show only a slight increase above the incidence of infection in children of American parentage. Doctor Faber has offered a very plausible explanation of this. In the case of the Chinese there is second and third generation adaptation to American conditions, but this does not apply so universally to the Japanese. However, the housing conditions and personal hygiene in both races are rapidly assuming American standards and both races consume the same rigidly inspected milk supplied to the entire population of San Francisco. A further study of these children of Oriental parentage will be watched with great interest. Repeated examination of some of the same children

with a standardized tuberculin would also be of interest.



WILLIAM M. HAPP, M. D. (523 West Sixth Street, Los Angeles).—Doctor Dickey has very correctly called attention to the fallacy of the statistics on tuberculous infection among children of different ages as determined by tuberculin tests. The high percentage of infection found in European clinics was unquestionably due to the fact that the children tested were clinic patients, many of whom were sick, and such results do not indicate the cross section of the population at large. The figures quoted for California city children, giving a positive percentage of forty-two per cent for ages twelve to fourteen, is probably higher than the incidence of infection among California city children in general.

One factor which must be considered is the number of tuberculous adults who migrate here for their health. The incidence of infection among their children is very high. The percentage of positive reactions among children will be higher when the intracutaneous test is used than with the Pirquet test. For routine testing, 1/100 mg. should be used and the amount used should always be stated, as with stronger amounts the percentage of positive reactions will be higher. It is very essential to use a standardized tuberculin which has been tested and found to be potent on known reactors, as some of the solutions on the market are relatively inactive. The intracutaneous test, when thus performed, is far more reliable than the Pirquet test and has largely superseded it.

It must be remembered that a positive tuberculin test indicates infection and not disease or even activity. Such infection without activity is not necessarily harmful to the individual, but may be valuable in establishing an immunity against subsequent infections.

#### GOLD AND SODIUM THIOSULPHATE IN THE TREATMENT OF LUPUS ERYTHEMATOSUS\*

By HIRAM E. MILLER, M. D.  
San Francisco

DISCUSSION by Samuel Ayres, Jr., M.D., Los Angeles; George F. Koetter, M.D., Los Angeles; Thomas J. Clark, M.D., Oakland; Moses Scholtz, M.D., Los Angeles.

SCHAMBERG'S article on the treatment of lupus erythematosus with gold and sodium thiosulphate in February, 1927, was so convincing that most dermatologists are now using the drug in the treatment of this disease. His twenty-five patients, as well as thirty additional ones reported by Whitehouse and Bechet in November of the same year, were definitely improved or cured under this treatment. In view of the fact that lupus erythematosus was considered to be practically incurable by all previous types of therapy, these results are quite remarkable. In this paper I am reporting the results of gold and sodium thiosulphate treatment in fifty-three patients with lupus erythematosus and twenty-one patients with various other chronic skin diseases.

Gold compounds have been a subject of study in the treatment of tuberculosis and allied diseases since 1890 when Koch demonstrated their effect on the tubercle bacillus in the test tube.

\* From the Department of Dermatology, University of California Medical School, San Francisco.

\* Read before the Dermatology and Syphilology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

| TABLE 1.—Gold and Sodium Thiosulphate in Treatment of Lupus Erythematosus. |                      |          |              |                            |                              |
|----------------------------------------------------------------------------|----------------------|----------|--------------|----------------------------|------------------------------|
| Number of Patients Treated                                                 | Severity of Eruption |          |              | Total Number of Injections | Average Number of Injections |
|                                                                            | Mild                 | Moderate | Disseminated |                            |                              |
| 53                                                                         | 24                   | 28       | 1            | 378                        | 7                            |

In recent years Bruck and Glück, Martenstein and others have reported on laboratory and clinical experiences with various gold preparations. In 1917 Feldt of Germany made a compound (4-amino 2-aurothiophenol carbonic acid) to which the trade name of "krysolgan" was given. This has been used extensively abroad in the treatment of cutaneous tuberculosis and lupus erythematosus. In 1924 Mollgard of Copenhagen published a new and economical method for the manufacture of gold and sodium thiosulphate. It had previously been produced in 1845 by Fordos and Gelis, but by an expensive and almost prohibitive process. The trade name of "sanocrysin" was given to the drug. It remained, however, for Schamberg and Wright of Philadelphia to use it in the treatment of lupus erythematosus. Through their efforts the drug has been put on the American market at a reasonable price.

Gold and sodium thiosulphate is a fine white crystalline substance, readily soluble in water and comparatively nontoxic to man. It is given intravenously, at five to seven-day intervals, in one decigram doses, dissolved in four to five cc. of distilled water. The first dose should consist of one-half a decigram to test the patient's tolerance to the drug. A course of six to eight weekly treatments is generally given and after a rest period of two to four weeks they are again resumed. When the lesions have cleared, recurrences are less numerous if the patient receives one injection every two or three weeks for three to four months.

REPORT OF PATIENTS TREATED  
I. LUPUS ERYTHEMATOSUS

For the past eight months we have been treating all patients with lupus erythematosus at the Dermatological Clinic of the University of California Medical School and in private practice with gold and sodium thiosulphate. Table 1 shows the number of patients treated and Table 2 the results of this treatment. Some of the patients had the disease for twenty years or more, others for only a few months. The improvement was as striking in those of long duration as in the early ones. The patients in whom all foci of infection had previously been removed did not improve more rapidly or show any more recurrences than those in whom this phase of the disease had not been investigated. The period of observation, however, has been too short to draw any definite conclusions in this regard. Thirty-one (60 per cent) of them are clinically well and sixteen (30 per cent) are improved and still under

treatment. Most of them will probably clear under further therapy.

2. VARIOUS CHRONIC SKIN DISEASES

Several patients with skin diseases generally considered to have a tuberculous background and some of unknown etiology were treated with gold and sodium thiosulphate. Table 3 shows the result of this treatment. Not any of them were cured, but those generally classified as having a tuberculous etiology were definitely improved, *i. e.*, lupus vulgaris, erythema induratum and papulonecrotic tuberculide. I very much doubt, however, that further treatment will cure them. The improvement in four patients with psoriasis and one with urticaria pigmentosa is probably only temporary.

REACTIONS

Table 2 shows three patients with reactions. One patient with a rather extensive lupus erythematosus of the discoid type, developed an extensive erythematous eruption over the face, neck and arms after the second injection. It was indistinguishable from an acute disseminated lupus erythematosus. It cleared in three weeks' time and all other evidence of the disease as well. The second patient with a reaction developed a similar eruption. It cleared in about two months' time and the original disease was about 35 per cent improved when it subsided. The third reaction was in the form of a mild jaundice and occurred in a patient with heart disease and an associated enlargement of the liver. I do not think that the drug had anything to do with its development. I have not observed any foreign protein reactions with general malaise, fever, etc., or any immediate reactions with respiratory distress, vomiting, etc.

ACTION OF THE DRUG

The mode of action of gold and sodium thiosulphate in the treatment of lupus erythematosus is not definitely understood. It is generally assumed that the disease is due to some focus of tuberculosis in the body and that the drug cures, or at least improves, this infection. In the gold treatment of pulmonary and other types of tuberculosis, such satisfactory results are not obtained.

Some authors maintain that the drug acts directly on the capillary endothelium. This could easily explain the rapid improvement in some patients. Other authorities are of the opinion that

| TABLE 2.—Results of Treatment—Lupus Erythematosus. |          |      |      |          |           |
|----------------------------------------------------|----------|------|------|----------|-----------|
| Total                                              | Improved | Well | Lost | Recurred | Reactions |
| 53                                                 | 16       | 31   | 6    | 4        | 3         |
| Average No                                         |          |      |      |          |           |
| Treatments                                         | 6        | 8    | 2    | 9        | 2         |



TABLE 3.—Gold and Sodium Thiosulphate in Various Chronic Skin Diseases

| Total  | Lupus Vulgaris | Erythema Induratum | Psoriasis | Lichen Planus | Urticaria Pigmentosa | Tuberculide | Eczema  |
|--------|----------------|--------------------|-----------|---------------|----------------------|-------------|---------|
| 21     | 5              | 4                  | 4         | 2             | 1                    | 2           | 3       |
| Result | Improved       | Improved           | Improved  | Unimpr.       | Improved             | Improved    | Unimpr. |

gold acts in the same manner as tuberculin, causing a hyperemia around the diseased areas with a subsequent healing by fibrosis.

SUMMARY

Gold and sodium thiosulphate is of proven efficacy in the treatment of lupus erythematosus. Sixty per cent of fifty-three patients treated with this drug during the past eight months are clinically well. Thirty per cent are markedly improved and will probably clear under further treatment. Patients with lupus vulgaris, erythema induratum and papulonecrotic tuberculide are improved, but have not entirely cleared after a rather prolonged use of the drug.

384 Post Street.

DISCUSSION

SAMUEL AYRES, JR., M. D. (517 Westlake Professional Building, Los Angeles).—Dr. Miller has very ably summarized the present status of gold in the treatment of lupus erythematosus. The favorable results which he has reported agree substantially with the findings of other investigators. Although it is interesting to note for statistical purposes that patients who have obvious foci of infection clear up as rapidly under gold as do those who have not, nevertheless all such definite foci should be removed. We have all seen occasional cases where a striking improvement or even a cure has followed such removal; in all probability, less gold would be required in these cases, and since gold has been known to produce serious toxic reaction, the advantage of giving the least possible amount is apparent.

Gold has been given over a considerable period of time without untoward symptoms. One of my patients received a total of thirty injections of 0.1 gram each, at weekly intervals except for a lapse of about two months after the fifteenth dose. In this case a very disfiguring eruption of about four years' standing was cured except for several lesions in the scalp, which remained rough and scaly.

My experience has not been sufficient to justify any detailed statistics. In nine private and clinic cases there were no failures and improvement ranged from 40 to 95 per cent. In two cases where a severe generalized erythematous reaction developed after the second or third dose, marked improvement in the lupus erythematosus followed recovery from the reaction. Another case showed a milder type of reaction characterized by redness and burning of the mucus membrane of the mouth, which disappeared on temporary cessation of treatment followed by smaller doses and longer intervals.

In the employment of gold in the treatment of lupus erythematosus, dermatology has made a tremendous stride in the successful handling of a hitherto extremely obstinate and disfiguring disease.

⌘

GEORGE F. KOETTER, M. D. (1136 West Sixth Street, Los Angeles).—My series consists of eighteen private and clinic cases. Although too small for detailed statistics, two of the cases are worthy of brief description.

Case A.—Male; discoid variety of eight years' dura-

tion with areas of atrophy in the scalp. No improvement was noted after eight injections of gold sodium thiosulphate, but on removing the focus of infection in the prostate, rapid progress occurred.

Case B.—Male; extensive lesions with "cigarette paper-like" scarring on the face, in the scalp and dorsum of both hands. Rapid improvement was noted after the third injection, but no improvement to the atrophied areas in the scalp. Following the tenth and final injection, the bald areas showed a fine regrowth of hair.

The use of gold sodium thiosulphate has given us a powerful drug in the treatment of a recalcitrant disease.

⌘

THOMAS J. CLARK, M. D. (146 Lake Street, Oakland). Dr. Miller's report should be of definite value to the medical profession.

The cases of lupus erythematosus that have been under my care in the past year or so, have been treated by application of phenol followed by an application of the high frequency electric current, and as the results obtained have been very satisfactory, it was considered wise to continue.

Gold preparations in the treatment of tuberculous patients presenting the disease in various types have been used and good results reported by some clinicians. Gold has also been used in the treatment of syphilis, carcinoma, nervous diseases and many other conditions. That it has active therapeutic value has been demonstrated. Gold has been reported as less toxic than most of the heavy metals, but it is eliminated slowly from the system, chiefly by the bowel.

That irritation of the kidneys may result should be kept in mind, as many have reported an associated albuminuria with lupus erythematosus cases. The severe reactions occurring in some of these cases after a few injections of the gold are warnings that we must proceed carefully.

The cause of lupus erythematosus and the action of gold preparation are as yet not fully known. The gold seems to stimulate the absorption of inflammatory cellular products that block the lymph and small vessels of the corium and thus allow normal nutritional changes to continue.

⌘

MOSES SCHOLTZ, M. D. (718 Brockman Building, Los Angeles).—Doctor Miller's presentation of this timely and important subject is to be commended for its conciseness and terseness. The introduction of gold sodium thiosulphate in the treatment of lupus erythematosus is unquestionably one of the most striking achievements of modern dermatology.

My personal experience with some twenty cases fully confirms the general impression that gold treatment is well nigh specific in lupus erythematosus.

The dosage used in the beginning was 25 mgs., later 50 mgs., once a week. The improvement noted was uniform after the first three or four injections or sooner, and steadily progressed until after eight to fifteen injections. The case practically cleared up.

In one obese female patient, gold was used intramuscularly. The improvement was perceptibly slower than in other cases, but there was no untoward local reaction. In a patient sixty-five years of age with an inveterate psoriasis, I have seen a pro-

nounced universal morbilliform eruption develop after a third injection of 100 mgs., while two previous injections of 50 mgs. were well tolerated. There was no effect on the psoriasis in this case. In four other cases of psoriasis there was an improvement, but only temporary.

It is of interest to note that severe inveterate cases with multiple patches responded as promptly as mild superficial cases with one or two patches. The clinical response was so prompt and certain that the local treatment was abandoned in all cases.

The possibility of relapse, a factor of the greatest importance for the proper evaluation of the new treatment, cannot be answered definitely at the present time. The longest period of time which has elapsed since the completion of the gold treatment in various cases is from six to eight months. However, even this short time shows that the tendency to relapse is slight, and easily controlled by the continuance of treatment.

### SPINAL ANESTHESIA\*

WITH SPECIAL REFERENCE TO THE USE  
OF EPHEDRIN

By HALL G. HOLDER, M. D.  
*San Diego*

MANY intercurrent diseases complicate and increase the risk of surgical intervention. With the advent of modern methods and materials, more cases entailing grave risks are brought to the operating room. Frequently the operative procedure is of secondary importance to the choice of a safe anesthetic. Today both patient and surgeon demand that anesthesia shall be as free as possible from immediate and remote dangers and complications. In addition the surgeon should require and receive perfect relaxation to facilitate his work with either scalpel or cautery.

#### SPINAL ANESTHESIA

Certainly there is no ideal routine anesthetic agent in general use at the present time. Spinal anesthesia properly administered and controlled meets a definite need in an increasing number of cases. From a review of the literature spinal anesthetic is receiving more frequent use.

Fear and prejudice still linger in the minds of the majority of the surgical profession who are unfamiliar with its use. Much of the reported disadvantage, mortality and sequelae followed the use of drugs and methods much inferior to those of today. Also many of the bad results have been on a class of patients who were deemed poor risks and unsuitable for other anesthetic methods. I have never been able to understand the reasoning that permitted spinal anesthesia which was considered dangerous and unsuitable for the average surgical procedure, to be used in the debilitated, the cachectic, the icteric, and the ascitic, to the exclusion of one of the so-called safer methods. In comparing inhalation anesthesia with regional, one must consider carefully statistics of the former. For the greater part these reports come from the best clinics and

hospitals. The smaller hospitals and less experienced anesthetist's results are never recorded and, therefore, there is no record of the mortality in those fields where the greatest mortality exists. The real mortality of inhalation anesthesia does not occur while the patient is on the operating table, but is secondary, taking place from one hour to one week following induction. Secondary mortality is 95 per cent of the total; a meager 5 per cent is primary mortality. If the laws which govern spinal anesthesia, based on anatomy and physiology, were thoroughly understood the limitations and contraindications would also be understood and the primary mortality of spinal anesthesia would be no greater than that of inhalation, and secondary mortality would be nil. Pitkin<sup>4</sup> in a recent article on this subject says, "If I were to prophesy, inhalation anesthesia in general will be in a class with chloroform ten years hence and spinal or regional will be the anesthetic of choice."

#### ADVANTAGES OF SPINAL ANESTHESIA

With patients properly prepared, simplicity of administration is the first advantage. There need be no apprehension, compromised psychic state or the slightest discomfort of induction. Compared with other forms of regional anesthesia the technique is easy and simple, and with slight modification is applicable to a wide range of operations over a large portion of the body. It has no bad effect on any important organ as do the inhalation anesthetics in varying degrees. Metabolic equilibrium is little disturbed; prompt recovery unattended by nausea and vomiting, makes possible early ingestion of food and fluids. Postoperative complications that sometimes accompany inhalation anesthesia such as ileus, acidosis and aspiration pneumonia are never seen. Acidosis is prevented by lack of derangement of any vital function and any necessity or cause for dehydration pre- or postoperative. Paralysis of the gastro-intestinal tract, always an annoying and not infrequently disastrous postoperative complication, is rarely seen after spinal anesthesia, and then only in a comparatively mild form. A paralysis of the bowel is a familiar concomitant of violent irritation of the sensory nervous mechanism such as is produced by opening the peritoneal cavity and traumatization of structures within. The clinical importance of postoperative paralytic distention of the bowel producing associated secondary chemical changes in the blood is well known. Markowitz and Campbell<sup>1</sup> recently confirmed the observations of Wagner<sup>6</sup> that spinal anesthesia promptly restores bowel movements in cases of paralytic ileus. They conclude that paralytic ileus is of the nature of a reflex inhibition produced by trauma dependent on the integrity of the reflex arc, and when the continuity of the arc is broken by the effect of spinal block the ileus is relieved. This phenomenon is produced by anesthesia of the sympathetic fibers to the gut, permitting the unopposed vagus action to increase peristalsis. Consequently the mildness or absence of ileus in these cases.

Intraspinal block effects perfect anesthesia with complete muscular relaxation. It produces a nega-

\*From the Surgical Clinic of Doctors Thomas O. Burger, Clyde J. Osborne, and Hall G. Holder, San Diego.

\*Read before the Anesthesiology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



tive abdominal pressure, the intestines becoming flat and falling back on the vertebral column, thus allowing easy and efficient exploration. Surgical technique may be carried out with a minimum of trauma. The particular advantage and importance of this silent abdomen is appreciated in suppurative conditions within the peritoneal cavity. Because of the absence of coughing, vomiting and distention there is little strain on the abdominal wall after operation, thereby establishing the most favorable condition for wound repair and comfort to the patient.

PHYSIOLOGY

Spinal anesthesia has not had the good fortune to interest physiologists as other forms of anesthesia have. It is only through clinical observation that little by little one has come to understand its fundamental physiology.

First it is a regional anesthesia; strongly radicular, acting on the intraspinal segment of the posterior roots at the level of the injection. The diffusion of the anesthetic to the anterior roots does not necessarily occur. If the anesthetic solution is injected slowly the analgesia is localized only to a few roots, and the motor power remains unaffected. When injection is made in the fourth lumbar space there is no question that spinal anesthesia is a radicular regional anesthesia, since one is able to follow its course. First the perineum, then the heel, then anesthesia progresses up the leg, and finally reaches the thigh.

DIFFUSION OF ANESTHETIC IN SPINAL FLUID

The circulation of the spinal fluid is so slow that it may be eliminated as a factor. Gravity plays practically no rôle as there is no change in the anesthetic level by putting the patient in Trendelenburg position or the reverse. The diffusion of the anesthetic is exactly dependent upon three laws of the diffusion of one fluid in another in a closed vessel as follows:

1. The diffusion is inversely proportional to the concentration of the solution injected which with an isotonic or, perhaps, slightly hypertonic solution such as we obtain by dissolving the novocain in spinal fluid, limits the diffusion to five or six roots. Dilution by using larger amounts of spinal fluid therefore increases the height of anesthesia. This practice of dilution has the additional advantage of allowing the novocain to become fixed more rapidly, thus diminishing the chance of toxic effect.
2. The diffusion is inversely proportional to the pressure of the cerebrospinal fluid. It is a recognized fact that the best anesthetic is obtained in those cases with an elevated intraspinal pressure.

TABLE 1.—Novocain with Ephedrin

| Dose Novocain             | Average pulse variation from preanesthetic reading |       | Average blood pressure variation from preanesthetic reading in mm. of Hg. |       | Per cent of cases |
|---------------------------|----------------------------------------------------|-------|---------------------------------------------------------------------------|-------|-------------------|
|                           | Plus                                               | Minus | Plus                                                                      | Minus |                   |
| 50-100 mg.                | 2.9                                                |       | 9.5                                                                       |       | 15.8              |
| 100 mg. and up            | 1.1                                                |       | 12.8                                                                      |       | 26.4              |
| Novocain without Ephedrin |                                                    |       |                                                                           |       |                   |
| 50-100 mg.                | 3.3                                                |       | 9.6                                                                       |       | 54.9              |
| 100 mg. and up            | 15.7                                               |       | 37.5                                                                      |       | 2.6               |

3. Diffusion is also directly proportional to the speed of injection. If the solution is forced in, the diffusion is maximum and instantaneous. But this procedure is improper technique, as the diffusion instead of remaining localized to the posterior roots, where desired, is brought to the anterior roots as well, with an associated vasomotor paralysis. Thus much of the fall in blood pressure may be controlled by a slow, careful administration. The reason for this drop in blood pressure is a paralysis of vasomotor control, particularly of the splanchnic area. The vasomotor fibers emanate from the cord in the region between the level of the second dorsal and the third lumbar spinal roots. The splanchnic area is controlled by the region from the sixth dorsal to the third lumbar, all of which are involved in anesthesia of the abdominal wall. If these fibers are blocked a pronounced drop in blood pressure ensues.

ADMINISTRATION

The anesthetic agent is novocain crystals in hermetically sealed ampoules; the diluent, spinal fluid. The method of induction is simple. Preparation by the routine use of morphin and scopolamin is practiced. Only three points concerning the puncture need emphasis: first, asepsis; second, administration with patient lying on either side, thus avoiding discomfort and the initiation of cerebral anemia; and third, use of twenty or twenty-two gauge conical or bevel-pointed needle so as to minimize trauma to the meninges, thereby practically eliminating cephalalgia as a postanesthetic sequela. The use of a fine needle after

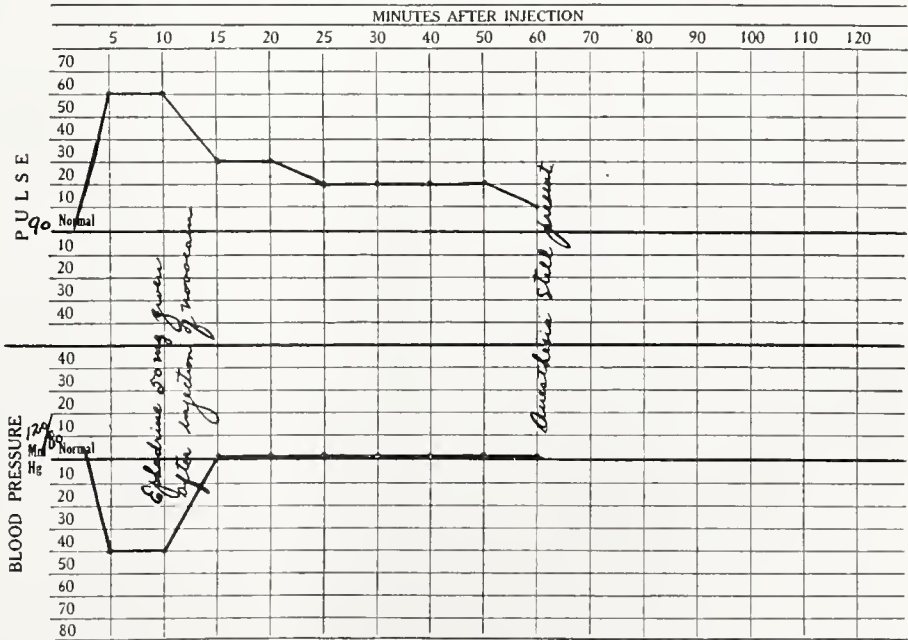


Chart 2—Laparotomy: 125 mg. of novocain in second lumbar. Ephedrin, omitted by error was subsequently given after the initial marked fall in blood pressure with restoration to the pre-anesthetic level. Note compensatory reaction of pulse.

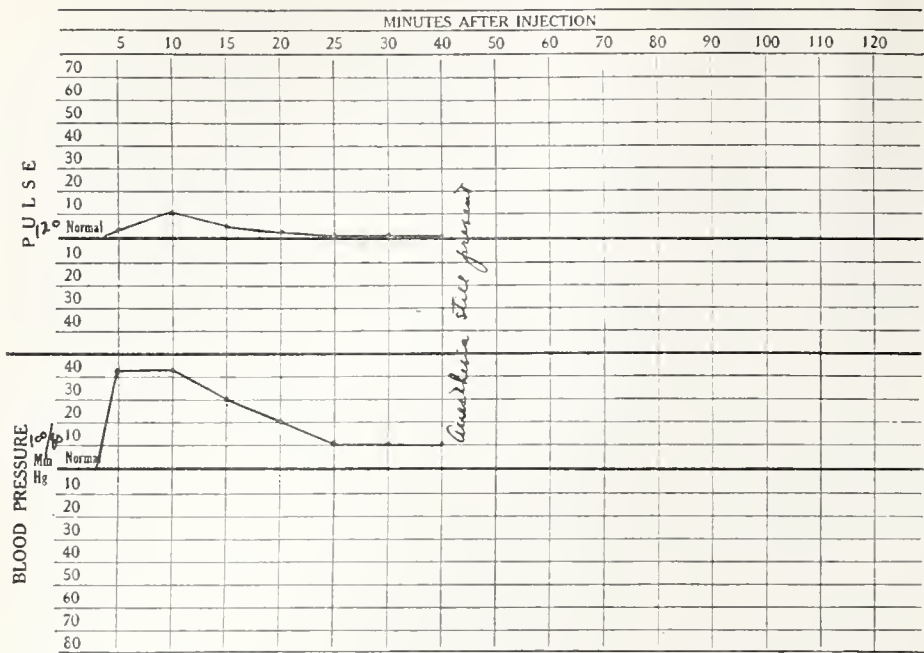


Chart 3—Laparotomy in poor anesthetic risk with bilateral pulmonary tuberculosis; 100 mg. of novocain in L2; the systolic blood pressure was 100, the ephedrin not only prevented a fall but maintained same over this level throughout the operation. Note little change of pulse rate.

skin infiltration at the site of puncture makes this procedure practically painless. Following administration the patient should be watched carefully by some responsible person. Blood pressure readings should be frequently taken and the patient entertained if he is disposed to talk. These patients require as much attention as those receiving an inhalation anesthetic, so that uncontrollable complications will not occur.

HEIGHT OF ANESTHESIA

The height of anesthesia depends upon the foregoing laws. Chief among these are the site of puncture, the amount of fluid withdrawn and, to a less extent, the amount of the drug used. These factors are utilized in different ways by different men in getting the desired level of anesthesia. The method of which Jonnesco has been the chief exponent depends mainly on the location of the puncture, it being his purpose to limit the area of anesthesia. The disadvantage of this method, however, is the possibility of cord injury with a puncture above the level of the second lumbar vertebra. Punctures above this point can, of course, usually be made without injury, as the point of the needle is stopped in the subarachnoid space before the cord is reached. However, occasionally the arachnoid space is obliterated because of adhesions. There is always an added safety by making punctures in the lumbar region and gaining height of anesthesia in other ways. For perineal anesthesia the puncture is made in the fourth lumbar space; for operations on the lower extremities, in the third, and for for laparotomies, in the second lumbar. Height of anesthesia after puncture in the second space is obtained by dissolving the novocain in larger amounts of spinal fluid, never exceeding an upper limit of ten cubic centimeters. Curiously enough, increase in the dose of the drug after a certain point has no decided effect in increasing the level of anesthesia. As most of the work reported is gynecological

we needed only the simplified doses of 50 mg. in the fourth lumbar for perineal anesthesia and 100 to 125 mg. in the second lumbar for satisfactory anesthesia of the lower abdomen. In most instances it was only necessary after puncture to collect 2 to 3 cc. of spinal fluid in the opened ampoule of novocain, dissolving same and returning solution. Anesthesia is almost instantaneous, so that by the time the patient is prepared the surgeon may proceed. From our data the average length of anesthesia was about one hour. This corresponds favorably with the observations of others. McMullin<sup>2</sup> is the first in this country to refer to the use of adrenalin in the anesthetic solution. I am aware that this is practiced in certain Continental clinics with the claim of lengthened anesthesia. However, his results from its use present no advantages. For long operations it becomes necessary to supplement with other forms of regional or inhalation anesthesia. Rarely should it be necessary to exceed one hour with the average surgical procedure, and if longer anesthesia be necessary, gas oxygen or ethylene during the closing minutes is most satisfactory. The inhalation anesthetics have the advantage of counteracting any depressant effect from the spinal, and raise blood pressure if it is still below normal.

STABILIZATION OF BLOOD PRESSURE  
BY PRELIMINARY INJECTION  
OF EPHEDRIN

The principal objection to spinal anesthesia has been the fall in blood pressure, produced by pooling of blood in the splanchnic area, due to vasomotor paralysis. Surprising results in stabilization have been obtained by the subcutaneous use of ephedrin fifteen minutes before administration. Not infrequently there is an actual elevation of the blood pressure throughout the anesthetic or a stabilization at the preanesthetic level. The usual curve of blood pressure readings is represented by a slow gradual drop of 10 to 20 mm., at this point striking a constant level until the anesthetic begins to wear off, when it gradually returns to the original reading. Occasionally a marked drop is seen, most often in cases of hypertension, when repetition of the ephedrin subcutaneously or intravenously returns the blood pressure to a satisfactory level. Since using ephedrin, vertigo, nausea and vomiting are much less common, which indicates that these were results of the sharp drop in blood pressure. Formerly adrenalin was our chief weapon against the vasomotor paralysis but, due to its fleeting action, has been supplanted by ephedrin, which has a long-sustained epinephrin-like action. The use of ephedrin in this connection was first reported by



Ockerblad and Dillon<sup>3</sup> in a small series of urologic cases. They used from 125 to 200 mg. of novocain and were able successfully to control blood pressure fall. It was their practice to give the ephedrin to restore blood-pressure level after it had dropped, rather than to prevent the initial drop by preliminary subcutaneous injection. Since its use, spinal anesthesia is given with less anxiety to the anesthetist and to the physician and discomfort to the patient.

#### ANALYSIS OF RESULTS

In a series of 151 personally administered cases, 17.8 per cent of which are laparotomies, mostly gynecological, 74.8 per cent vaginal or perineal operations including one external urethrotomy, and 7.2 per cent combined laparotomy and vaginal operations, there was one failure due to disengagement of the needle from the spinal canal during administration, but no mortality or morbidity as the result of the anesthetic. In 7.9 per cent the anesthetic wore off before completion of the operation, and these were finished under gas oxygen, although during the period of anesthesia the effectiveness was 100 per cent in each instance. Nervousness and minor subjective sensations were complained of in 4 or 2.6 per cent of cases; nausea during anesthesia in 5 or 3.3 per cent, and vomiting in only 3 or 1.9 per cent. There were no post-anesthetic sequelae other than headache, which occurred in only 3 or 1.9 per cent of cases, in one alone lasting more than twenty-four hours.

In comparison with these favorable results with novocain Schultz<sup>5</sup> in a recent article on spinal anesthesia in which apothesine was used records serious headache in one in every fifteen cases and the necessity for administration of oxygen throughout the anesthetic to control retching and vomiting. Pitkin<sup>4</sup> states that the above complications with apothesine are common, and reiterates the known value and desirability of novocain as the anesthetic agent.

Approximately one-half of the series received ephedrin. The majority of those given the larger doses of novocain received the ephedrin, while the smaller dose of novocain was given without its use. The contrast between blood pressure and pulse with and without ephedrin is seen in the above chart. It will be noted that those cases given 100 mg. or more novocain without ephedrin had an average blood pressure drop of 37.5 mm., while those receiving ephedrin had an average drop of 12.8 mm. Cases receiving 50 to 100 mg. of novocain without ephedrin had an average fall of 9.6 mm., while those receiving ephedrin had an average elevation above the preanesthetic reading of 9.5 mm. The pulse in general shows a compensatory action best seen in the marked drop in blood pressure in those cases receiving large

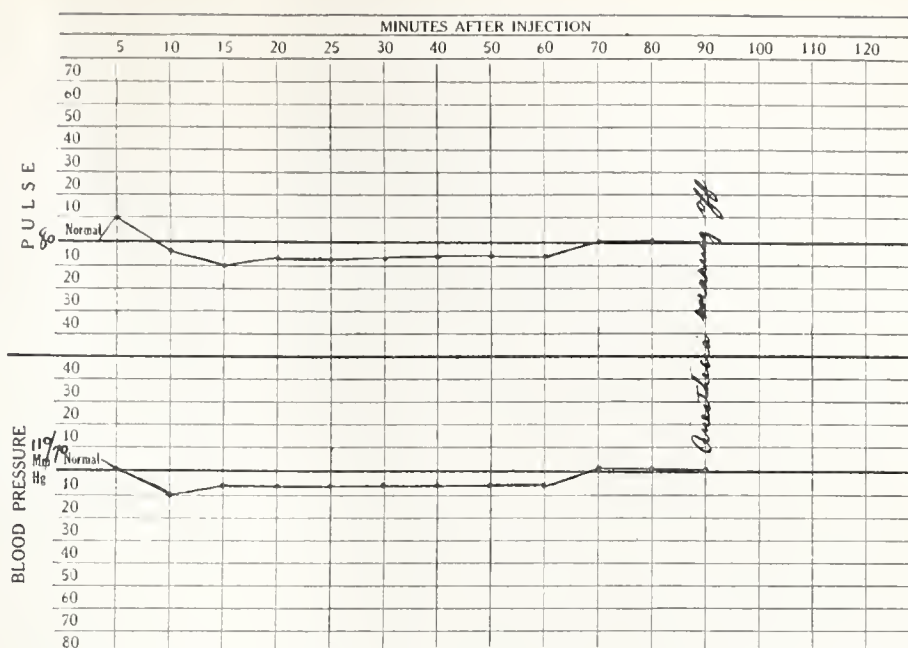


Chart 4—Laparotomy: 125 mg. of novocain in L2; practically no change in pulse or blood pressure showing stabilizing effect of ephedrin. The anesthetic lasted one and a half hours.

doses in which ephedrin was not employed, there being an average increased rate of 15.7 beats per minute.

The accompanying charts represent the type of record used in these cases and graphically show the action of ephedrin.

#### INDICATIONS AND CONTRAINDICATIONS

Spinal anesthesia is adaptable to all classes of operative procedures below the costal margin. It is the method of choice in cases complicated by degenerative diseases of any vital organ, purulent exudation within the peritoneal cavity or a toxic state, as for example, the result of intestinal obstruction.

Its only contraindication is in the presence of severe traumatic or hemorrhagic shock.

#### SUMMARY

One hundred and fifty-one cases of spinal anesthesia are reported with no morbidity or mortality, and only one failure. Subjective and objective symptoms and sensations during the anesthetic occurred in about 3 per cent of cases. There were no postanesthetic sequelae other than headache, which occurred in 1.9 per cent of cases, in one lasting more than twenty-four hours.

Approximately one-half of the series received ephedrin. In those cases given 100 mg. or over of novocain without ephedrin, there was an average blood pressure drop of 37.5 mm., while those receiving it had an average drop of 12.8 mm. The sustained epinephrin-like action of ephedrin is definitely shown and its value in stabilizing blood pressure in spinal anesthesia clearly indicated.

#### CONCLUSIONS

1. Spinal anesthesia properly administered and controlled is a safe anesthetic for operations below the costal margin. Induction is simple and without discomfort.
2. It is nontoxic and without effect on the function of any organ. For these reasons it is the anesthetic of choice in toxic and debilitated

conditions, degenerating diseases of vital organs or suppurative conditions within the peritoneal cavity.

3. Recovery is unhampered for the same reasons. Ileus and acidosis do not occur, nutrition is maintained and wound healing unretarded. Postanesthetic sequelae are limited to an occasional brief headache.

4. Ephedrin by preventing blood pressure fall controls spinal anesthesia and eliminates discomforts during the anesthetic.

5. Spinal anesthesia is contraindicated in severe traumatic or hemorrhagic shock.

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### CLINICAL STUDY OF TUBERCULIN FRACTIONS PREPARED FROM NONPROTEIN CULTURE MEDIA\*

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IN this report is presented a comparative study of skin reactions made with old tuberculin and with a fraction of tuberculin prepared from a synthetic nonprotein culture medium in which tubercle bacilli had been cultivated. The fractional tuberculin has already been described in detail and results with its use reported in earlier publications.<sup>1</sup> The apparent advantage of such a substance for diagnostic purposes lies in its freedom from nonspecific irritating components and from protein materials that are unrelated to the tubercle bacillus itself.

In studying the efficacy of test materials it is not sufficient to compare the reactions without some basic standard. It would seem more important to analyze the observed discrepancies in terms of a carefully evaluated group of clinical symptoms, signs, and auxiliary laboratory data and to

refer the observations to the patient, who must always be considered as the standard.

#### CLASSIFICATION OF CLINICAL MATERIAL

The diagnosis of juvenile tuberculosis presents many difficulties of which the greatest, perhaps, lie in that large borderline group of patients having symptoms and signs which generally render a patient a tuberculosis suspect. There is doubt, however, that the so-called symptom-complex of tuberculosis in childhood is by any means a fixed quantity and can as such be used as a basis for certain diagnosis. An attempt was made, therefore, in our study to subject all the available data to an exhaustive analysis with the aim of correlating wherever possible the numerous variables most likely to confuse the picture. By this method we were able to compare the different skin reactions in terms of definite variables that occurred in the fixed groups chosen for study.

Our classification, as a point of departure, was based upon the complete clinical examination, history, and x-ray findings, with the results of old tuberculin (O. T.) tests as a tentative gauge for comparison with the tuberculin fractions.

#### SYMPTOMS

The symptoms considered were loss of weight, or failure to gain, lack of appetite, fatigability, cough, night sweats, lassitude, nervousness, and elevation of temperature.

#### CLINICAL FINDINGS

The points considered were malnutrition, tuberculous adenitis, involvement of bone, enlarged cervical lymph nodes, phlyctenular processes and percussion and auscultation findings.

#### DIAGNOSIS AND CLINICAL IMPRESSION

The tuberculous group comprised pulmonary tuberculosis, bronchial lymph node tuberculosis, tuberculous cervical adenitis, healed primary focus, tuberculosis of bones and peribronchial tuberculosis. The nontuberculous group included enlarged bronchial glands, nontuberculous lung disease, clinically normal patients, the three named having positive tuberculin tests (O. T.), and a group with negative tuberculin tests and likewise free from tuberculous manifestations.

In all the groups attention was paid to associated diagnoses in every case, so that the possible effect upon tuberculin reactions of complicating clinical conditions might be properly interpreted.

#### ROENTGENOGRAM FINDINGS

Chest films were diagnosed under the headings of primary focus, calcified bronchial glands, hilum calcification, peribronchial infiltration, enlarged bronchial glands, increased bronchial markings, parenchymal tuberculosis, thickened interlobar pleura, thickened apical pleura, and negative.

#### CONTACT AND NONCONTACT HISTORY

The history of definite exposure to and contact with tuberculosis was ascertained as accurately as possible. It is evident that the greatest source of error is found in the so-called noncontact case, owing to our inability to check this point in chil-

\* From the University of California Medical School and the George William Hooper Foundation for Medical Research, San Francisco.

\* Read before the Pathology and Bacteriology Section of the California Medical Association at the Fifty-Seventh Annual Session, April 30 to May 3, 1928.

\* This investigation was aided by a grant from the San Francisco Tuberculosis Association and the California State Tuberculosis Association and the Medical Research Grant of the University of California.



dren beyond the nursery age. For practical purposes, however, this division into two groups may be of interest if it be not of definitely proved value.

#### INTRADERMAL TUBERCULIN TESTS

Comparative tests were made with human old tuberculin and tuberculin fraction, using a fixed dilution equivalent to 0.1 milligram of tuberculin substance. Suitable controls were made with salt solution and culture media from which the tuberculins had been prepared. The simultaneous injections were observed at twenty-four, forty-eight and seventy-two-hour intervals, and in most cases until the visible skin reaction had disappeared. The areas were measured and the degree of infiltration and reddening noted. For roughly quantitative purposes the reactions were classified as follows:

A. Doubtful test, with area less than 0.5 by 0.5 cm. without reddening or infiltration and fading within twenty-four hours.

B. Slightly positive test, with area 0.5 by 0.5 to 1.0 by 1.0 cm., without definite reddening or infiltration or with slight reddening only and persisting twenty-four hours.

C. Moderately positive test, with area 1.0 by 1.0 cm. with slight to moderate reddening and infiltration and persisting forty-eight hours.

D. Strongly positive test, with area 2.0 by 2.0 cm. or more, with profound reddening and infiltration and persisting more than forty-eight hours.

Negative—areas too small and too transitory to be considered under the doubtful Group A.

The skin reactions were classified further with reference to agreement or disagreement of the comparative tuberculin and fractional tests. Five subdivisions were made:

1. Old tuberculin negative, and fraction positive.
2. Old tuberculin positive, and fraction negative.
3. Old tuberculin same as fraction.
4. Old tuberculin weaker than fraction.
5. Old tuberculin stronger than fraction.

In each of these groups the preceding grades of reaction (A, B, C, D, negative) were noted, so that every possible relation of one test to the other might be visualized.

We were able in the majority of patients to study comparative reactions for two to three years and in a considerable number for four years.

#### SUMMARY OF RESULTS

*Bronchial Gland Tuberculosis.*—There were thirty-nine patients in this group which included twenty-seven contacts and twelve noncontacts. Clinically this group represented a healed condition to which thirty-one cases belonged definitely, under the heading of healed bronchial gland tuberculosis without any other manifestations. Of the contacts, in fourteen, old tuberculin gave a stronger reaction than the fraction, six the same, five weaker than the fraction, and two positive when fractions were negative. In this last group one patient was clinically normal and had enlarged bronchial glands with some calcification, and the other had enlarged but not indubitably tuberculous glands. Of the noncontacts there were seven with old tuberculin stronger than fraction, and five

with the same reaction as fraction. In the healed group without other manifestations in which the old tuberculin reactions were stronger, there were eleven contacts and five noncontacts. In these sixteen tests fourteen were strong, eleven falling in the D classification, whereas the fractional tests ranged from doubtful (two) to weak (seven). The results showed eighteen tests definitely or strongly positive when the fractions were doubtfully positive, weak, or negative. When old tuberculin and fractions gave similar results there was agreement in eight cases. In the group of reactions with fraction giving a stronger test than old tuberculin, five fell in the clinical subdivision of definitely healed bronchial gland tuberculosis without other manifestations, and of these tests three were dubious and two, weak.

*Tuberculous Cervical Adenitis, Healed Primary Focus, Tuberculosis of Bones.*—In a group of twenty-five cases with definite evidence of tuberculous infection and healed tuberculous disease, there were eight tuberculous cervical adenitis, six tuberculosis of the bone, and eleven healed primary foci. Old tuberculin gave a reaction in all but four of twenty-five cases, medium or very marked reactions, and the fraction gave in eleven cases a medium or strong reaction. Concerning a judgment regarding tuberculous infection, the reactions with old tuberculin showed a satisfactory correlation of the tests and clinical data. From the standpoint of clinical activity or disease the fractions appeared to outweigh the old tuberculin as a diagnostic agent. Similar results have been obtained in another series of more than one hundred patients with healed primary foci and tuberculous cervical adenitis.

It would appear from our observations that a diagnosis of healed tuberculous cervical adenitis or of a healed primary focus in the lungs cannot be made with certainty in the absence of a definitely marked positive reaction to old tuberculin.

*Enlarged Bronchial Glands.*—In this group were considered:

A. Enlarged bronchial glands with positive old tuberculin.

B. Enlarged bronchial glands associated with healed bronchial gland tuberculosis.

C. Enlarged bronchial glands associated with tuberculous cervical adenitis.

D. Enlarged bronchial glands associated with healed peribronchial tuberculosis.

E. Enlarged bronchial glands associated with phlyctenular processes.

F. Enlarged bronchial glands associated with bone tuberculosis.

G. Enlarged bronchial glands associated with small calcifications.

In this group sixty-one of the seventy-two cases were negative for clinical signs of tuberculosis and of these, nine gave complaints such as lassitude, fatigue, and the like. The reactions in this group were as follows: Old tuberculin was greater than the fraction in seventeen cases; old tuberculin was positive when the fraction was negative in ten cases, or a total of twenty-seven (44.2 per cent) in which the old tuberculin test was pre-



dominant. Of these twenty-seven tests seventeen were moderately to very strongly positive (C-D). In contrast, five tests with the fractional tuberculin were weakly positive (B) and six doubtful (A) and six moderately strong. The fraction was stronger than old tuberculin in twelve cases and of these six were doubtful, five weakly positive, and one moderately positive.

It is significant that the fractions did not give negative tests when tuberculin was positive in cases with symptoms that might be construed as those of tuberculous activity.

*Nontuberculous Pulmonary Disease.*—There were fourteen cases in which old tuberculin gave either a greater reaction than the fraction or was positive when the fraction was negative. Sixteen cases of twenty-two in the entire group were non-contacts, among whom were ten with old tuberculin predominating or positive when the fraction was negative. When old tuberculin was stronger, reactions with fractions were doubtful in five instances (A), slightly positive (B) in two, and by contrast the old tuberculin reactions were marked (D) in three cases, definitely positive (C) in one, and slightly positive (B) in three.

In all the cases where fractions gave reactions equal to old tuberculin, showing medium or strong reactions, or in the cases where fractions gave medium to strong tests and old tuberculin at the same time gave weak to doubtful results, symptoms and signs were present in the history that might have been attributable to tuberculous activity. This, we believe, would appear to be of some significance.

*Clinically Normal Group.*—This group was divided into (a) clinically normal without pathologic changes, but with a positive tuberculin test; (b) clinically normal with small hilum calcifications and positive old tuberculin; (c) clinically normal with definite signs of healed tuberculous disease.

Ten out of twenty-five of this clinically normal A group gave greater reactions with old tuberculin than with fractions, and in two cases in addition, positive tuberculin tests were obtained, when fractions reacted negatively. It may be noted that in this group of twelve, seven were contacts and five noncontacts. In the entire group of twenty-five, fourteen were contacts and eleven noncontacts.

B group: Five out of eleven gave a greater reaction with old tuberculin than with fraction and in addition three cases were positive when fraction was negative. In this group of eleven, two cases were contacts and nine noncontacts, and in the group of eight reactors, one was a contact and seven were noncontact.

C group: Four out of seven in this group gave a greater reaction with old tuberculin than with fraction. In this group of four, one was noncontact and three were contact.

The clinical group as a whole, numbering forty-three cases, was divided almost equally between contact and noncontact patients, there being

twenty-two of the former and twenty-one of the latter.

Inasmuch as this group comprises cases with tuberculous infection but without any active process, the marked old tuberculin reaction gives information that is not consistent with the clinical picture. We are more concerned in a group of this type with the relation that the test might bear to the significant clinical data. In this connection the lesser reactivity of the tuberculin fraction might appear to have more significance, particularly when negative results are more informative.

*Negative Tuberculin Test.*—In this group of seventeen cases with negative old tuberculin reactions, ten were likewise negative with fractional tuberculin. Of the remaining seven, three gave a doubtful test, two a weakly positive, and two (contacts) gave a strong reaction. In addition these two patients showed a record of a positive old tuberculin test in the previous history. In all these cases symptoms and signs were present suggesting a possible old infection.

*Pulmonary Tuberculosis and Peribronchial Tuberculosis.*—In these groups, numbering twenty patients, no special differentiating characteristics of the test substances could be discerned. However, since these groups were too small for detailed study and correlation it did not seem advisable to draw any conclusions. In our opinion the value of a comparative study with the test substances under consideration can be better determined by devoting attention to the clinical groups of patients that present vague or indefinite clinical conditions that might be mistaken for tuberculosis.

#### DISCUSSION AND SUMMARY

In the evaluation of comparative skin reactions for tuberculosis two points might be considered: first, the diagnostic value in relation to tuberculous infection, and second, the relation to clinical disease. The supposition might be made that a strong test is to be associated with clinical activity and the weak or negative one be not so associated. The diagnostic superiority of a test would appear to rest in its ability to give a stronger reaction where only clinical disease existed to the exclusion of any cases with old, healed foci. As a corollary to this point, when a strong reaction with old tuberculin might lead one to believe that a weak reaction is valueless, the fractional tuberculin in such a case might give better information because the correlated results tend to show that nonclinical tuberculosis may be differentiated from tuberculous disease. In our experience the fractional tuberculin has never failed to give unequivocally positive results in definite tuberculous disease.

Three hundred and forty-six tuberculous and nontuberculous patients, ranging in age from seven months to sixteen years, have been studied with a view to comparing tuberculin reactions with specially prepared fractions of tuberculin. The cases have been divided into various groups to test more rigorously the diagnostic value of the tuberculin fractions. To this end, borderline groups



presenting unusual difficulty in diagnosis were selected. Stress was laid particularly upon healed infections. The chief differences in the reactions in those cases pointed to lesser reactivity on the part of tuberculin fractions in latent conditions in which old tuberculin gave moderate or marked reactions. The results indicate that a diagnosis of healed tuberculous cervicitis or of a healed primary focus cannot be made with certainty in the absence of a definitely marked positive reaction to old tuberculin.

Tuberculin fractions did not give negative tests when old tuberculin was positive in cases having symptoms that might be considered as those of tuberculous activity. In all the cases where tuberculin fraction gave reactions equal to those with old tuberculin when it showed medium or strong tests, or in cases where the fraction gave medium to strong and old tuberculin at the same time gave weak to doubtful results, symptoms and signs were present in the history that might have been attributable to tuberculous activity.

From detailed analyses of the different tuberculous and nontuberculous groups presented it can be concluded that the tuberculin fraction (T. E.) gives better results than old tuberculin, and is more selective as a clinical test.

In a clinically normal group equally divided between contact and noncontact patients with tuberculous infection but without any active process, the marked old tuberculin reactions gave information that was not consistent with the clinical picture. In these instances the lesser reactivity or negative results with the tuberculin fraction might be more significant, particularly when negative results are more informative.

Further studies of the type here presented are now under way, but at this writing lack the correlation necessary to enlarge these groups.

Note: Complete data will be published at a later date.

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#### DISCUSSION

CHESLEY BUSH, M.D. (Arroyo Sanatorium, Livermore).—This is certainly a praiseworthy attempt to evaluate the clinical usefulness of a tuberculin fraction prepared from a nonprotein culture medium. The difficulties of making such a test are tremendous. Our knowledge of tuberculosis in children is as yet too hazy to admit of rigid classifications, and although Koch's old tuberculin has been on the market for over a quarter of a century, we are still doubtful about its interpretation in many cases.

Attempts to produce a substance that will indicate clinical activity rather than simple infection have been numerous in the past few years, but all disappointing. Such a substance if reliable would be of infinite help.

✽

F. M. POTTINGER, M.D. (Monrovia).—As a result of immunological studies we are now beginning to obtain a more accurate idea of the nature of clinical tuberculosis. The clinical picture and the underlying pathologic changes are all due to the interplay between the bacilli, on the one hand, and the cellular response of

the patient, on the other hand. The various tuberculins more or less crudely represent that portion of the tubercle bacillus which is responsible for the sensitizing and immunizing mechanism which is set going by a tuberculous infection. Believing that it would be advantageous if the particular activating principle could be isolated, Long and his coworkers have been working on this for some time, and have produced a tuberculin by growing bacilli on a nonprotein medium, thus eliminating the protein of the culture fluid in Koch's original preparation. They have also isolated a water-soluble protein, which they have found to have the antigenic principles of tuberculin.

In my own work with the tuberculin reaction, which now extends over many years, I have found that the skin sensitivity upon which the reaction depends differs greatly in people according to their particular condition. The immunity reaction in tuberculosis is relative, and oscillates up and down. Sometimes it is much higher than at other times. Sometimes it entirely vanishes, even with patients who at the time harbor active infection. Theoretically it should be increased by each reinoculation, and it is the reinoculations that make activity in tuberculosis. This means that different individuals develop different degrees of immunity, hence show different degrees of sensitization and react differently to the same dose of antigen, even though their diseases be qualitatively and quantitatively much the same. It does not seem possible that uniformity of results can be expected so long as individuals react differently to the same degree of infection, unless there is some certain tuberculin fraction the presence of which is due alone to activity. The difficulty of determining such a fact is surrounded by many difficulties. Just when a tuberculous focus is throwing out tubercle protein cannot be established by any of our present methods of examination. This must be evident to all of those who have the opportunity of studying patients suffering from chronic tuberculosis over a long period of time. Small lesions in some will give marked symptoms that produce a definite clinical disease. Large lesions in others will produce no symptoms that are recognizable. It seems to me that herein lies one of the difficulties surrounding the very thing that Doctor Ebersson and his coworkers are trying to establish. If, however, they are able to isolate a principle from tuberculin that will differentiate active tuberculosis from latent and inactive lesions they will advance diagnosis far beyond what it is today, and particularly in the group of childhood and early juvenile tuberculosis. It is particularly in this group that some such method is needed.

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A. L. BRAMKAMP, M.D. (Banning).—This work of Doctor Ebersson is in line with present-day thought and effort to determine more definitely the composition of the tubercle bacillus, and the part each constituent may play in the pathology of tuberculosis. Not that such thought and effort are new, for the almost innumerable tuberculins are evidence to the contrary. Recently, however, varied applications of the methods of biological chemistry have been giving us increasing understanding in the matter.

With a fuller knowledge of the chemical composition of the tubercle bacillus, a separation of the various constituents in pure form, and the determination of the action of each gives interesting information, and perhaps practically helpful means of diagnosis and treatment may be obtained. That the perfect antigen will be found in a single constituent or set combination of constituents of tuberculin, is almost too much to hope for. In this connection it is pertinent to recall that other substances (*e. g.*, sodium succinate and gold compounds) are used with the same purpose and effect as tuberculin, namely, to bring about an inflammatory reaction, specific or nonspecific, at the focus of disease. Doctor Ebersson's work concerns itself largely with tuberculin fractions as skin-test agents (prepared from tubercle bacilli grown on nonprotein media: an alcohol insoluble fraction, an



ether insoluble fraction, and an ether soluble fraction).

A number of years ago considerable interest was aroused by the Much-Deycke partial antigens, which were intended for therapeutic use after skin-testing with each to determine the particular respects in which resistance or immunity of the patient was lacking. Much separated four partigens: one, the water-soluble toxin, and three partial antigens; one, fatty acid lipoids soluble in alcohol; one, neutral fats soluble in ether, and an albuminous residue insoluble in its nature. This conception and practice of Much-Deycke never had great acceptance, and at this time we hear no more of it.

Nevertheless if these different views and efforts are not substantiated in full, they have at least a measure of value and help to point the way for future investigation.

Doctor Ebersson's work is being followed with great interest, and we are hoping for real advances in diagnostic methods as a result of his efforts.

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DOCTORS EBERSON and WOLFF (closing).—The discussions have covered the topic so thoroughly that our sole addition to them must be a word of appreciation to Doctors Bush, Pottenger and Bramkamp.

It is frankly admitted that such an important problem as is indicated here cannot be solved in the short time—almost five years—which we have thus far devoted to this clinical experimental investigation. However, it will be shown in our paper when it is published in full that a detailed clinical analysis of nearly 350 cases may be made more convincing when the material is evaluated by correlation and comparative studies.

We feel with Doctors Pottenger and Bush that there is great need for a preparation of tuberculin capable of differentiating active from latent and inactive tuberculous lesions. Although our results suggest that such a substance may be obtained, we are primarily interested in showing by comparative tests that the old tuberculin is certainly less efficient than the tuberculin fraction (T. E.) as a diagnostic agent.

That there have been and are now being produced numerous substitutes for old tuberculin is a healthy sign. What has been lacking, however, is a comprehensive study of clinical material with the newer preparations. We believe that several hundred patients studied thoroughly, and with the clinical and laboratory data properly analyzed, will give as cogent a demonstration as several thousand patients. Larger series over many years will naturally add confirming or refuting facts, but a scientific analysis of even a small group of cases can tell much.

The therapeutic value of tuberculin prepared from nonprotein culture media is suggested naturally. We have already had some experience with the T. E. (tuberculin fraction) in tuberculous choroiditis, resulting in a complete cure when old tuberculin, used similarly had failed to alter the clinical picture. Such a series would be of value, particularly when the therapy has been followed carefully in the eye clinic.

From the point of view of sensitization to the tuberculin product, it is important that we distinguish between specific and nonspecific reactions following repeated injections of substances containing tuberculin along with proteins from culture media. This criticism cannot be applied to the use of "synthetic" nonprotein media in which the products of tubercle bacilli are elaborated without reference to foreign proteins. In this instance sensitization that might develop from repeated injections of T. E. would indicate a specific response to the bacillary substances. Only in this sense, therefore, could it be correctly stated that sensitization to tuberculin might occur.

## THE INDUSTRIAL PHYSICIAN—HIS RELATION TO PATIENT AND CARRIER \*

By JAMES EAVES, M. D.

San Francisco

DISCUSSION by C. A. Dukes, M. D., Oakland; Otto R. Frisch, M. D., San Francisco.

IN industrial practice the physician or surgeon at all times is under the most critical scrutiny. He must satisfy patients, employers, insurance companies, and always be prepared to prove the correctness of his treatment. The industrial surgeon is a necessity; and industrial surgery is a specialty in itself.

### REQUISITES OF AN INDUSTRIAL SURGEON

Besides the requisite surgical training the industrial specialist must have an abundance of tact, patience and understanding. He must be far-sighted enough to realize that, although he is paid by the insurance companies, his success is dependent in the last analysis, not on the organization which pays him, but on the individuals who receive his services. He must satisfy both, but primarily he must satisfy his patients. He must be meticulously careful in his treatment of industrial cases, realizing always that the industrial patient is practically forced to accept his services, and usually accepts them in the expectation of getting second-rate treatment.

The patient tells his fellow employees, the organization for which he works, and the insurance company what he thinks of the services rendered, whether he received good or bad treatment at the hands of the industrial surgeon. Cumulatively these opinions will make or mar a surgeon's reputation. No employer or insurance company will send cases to a surgeon who consistently is given the reputation of rendering unskillful or roughshod service, technically or psychologically.

### INDUSTRIAL ACCIDENT ACT OF CALIFORNIA

Although the Workman's Compensation Law of the state of California places a limit on the amount of compensation allowed an injured workman, it places no limit on the cost of duration of medical service to be rendered. The law in regard to the furnishing of medical, surgical and hospital treatment is liberal, but there is nothing of charity in its liberality. Efficiency of manpower is as essential to society as it is to any given industrial enterprise. In general the greater the efficiency the greater the production of goods in any industrial or social organization. Economically and socially, therefore, it is of practical value to society to insist on a prompt return to work of the thousands of workmen injured in the state every year.

The prompt return to work of injured employees can be brought about only by efficient medical and surgical service. But it has become apparent that doctors as individuals must train

\* Read before the San Joaquin County Medical Society, Stockton, March 1, 1928.



themselves in human understanding, sympathy, insight and tact in order successfully to handle the various phases of industrial accident treatment with satisfaction to all parties. So much depends upon the study of human nature in the individual patient that no code of rules can satisfactorily meet the needs. The element of neurosis inherent in so many who are injured and so easily evoked by improper handling requires the greatest care in the selection of those who are to treat or come in contact with the injured. The theory is applicable all through the treatments. It applies to treatment by claim adjusters as well as by surgeons. It applies equally well to treatment of family and friends of the injured. It might be summed up as ability to inspire confidence, in your surgeon, your technician, one's self, and the future.

#### SUCCESSFUL INDUSTRIAL SURGERY

Industrial surgery must be practiced on a large scale in order to be successful. Although the fees are paid in cash and are paid promptly they are lower than those paid in private cases. The overhead expenses for medical personnel and equipment are far higher than would be necessary in private practice. Here and there a physician or surgeon seems to desire industrial practice because he assumes it is an easy method for him to pay his rent and overhead. Other surgeons seemingly enter the field of industrial practice for supposed easy money, and make of it an ordinary commercial business, forgetting that the workingman has a right to be treated honestly as a patient, and that the employer and insurance company also have very definite interests.

#### WHAT INSURANCE CARRIERS DESIRE

It might be well to set down briefly what insurance companies demand, and, very properly, get from the modern industrial surgeon equipped to meet the demands of this type of practice:

1. Prompt detailed reports to the company; by telephone in serious cases. The surgeon's report is usually the first received. It must fully answer all questions in first report forms.

2. If a definite diagnosis or prognosis cannot be made within twenty-four hours a supplementary report should follow at the earliest moment when a definite decision is arrived at. Many surgeons wonder why cases are transferred? If a surgeon seems reluctant to report cases it appears to the insurance company either as evidence of fear that he will not be considered competent, or as an effort to "cinch" retention of the case regardless of the company's wishes.

A specialist may be desired in emergencies or otherwise and the insurance company is entitled to the opportunity to say so. If in doubt at any time call the insurance company.

3. Be sure the case is compensable. If in doubt communicate with the insurance company immediately.

4. If possible always have an order from the employer authorizing treatment.

5. *Disability Estimates.*—Insurance companies want the facts, not excessively optimistic reports;

the truth is of more value. Subsequent reports are very essential especially when first estimates have to be changed. When a patient is instructed to return to work immediate notification should be sent to the company.

*Estimates.*—Under the law, before compensation is paid there is a waiting period of seven days, compensation commencing on the eighth day. Insurance companies are not interested in the waiting period, but if complications arise it is to their direct interest to be immediately acquainted. Notify them at once if the original estimate is extended. This is important to insurance companies because the law compels them in all cases to establish reserves to meet incurred future payments. The estimated period of disability and treatment must be as exact as possible.

Exaggerate your period of disability rather than minimize. You cannot curry favor with insurance companies by low estimates and poor results. The companies would far rather be able later to reduce an estimated outstanding reserve than be compelled to increase it.

Do not state that estimated disability "varies." The insurance companies want a definite opinion as to the estimated disability. A surgeon cannot always be correct, but one whose average estimate of disability is close is appreciated by an insurance company.

6. *Send Reports Promptly.*—Remember insurance companies are charged with prompt payment of compensation and delays can usually be traced to nonreport by the attending surgeon or to vagueness of a report rendered. This does injustice to the workingman and reflects upon the service of the insurance carrier.

7. *Consultants and Transfers.*—If you believe a consultant is necessary communicate with the insurance company for approval.

Consultations should be encouraged by the industrial surgeon. You must not avoid them, and the insurance companies do not wish you to avoid them. They frequently are their safeguards.

#### DISAGREEMENTS WITH INSURANCE CARRIERS

Insurance companies and doctors often are at loggerheads. Why? The doctor does not give the coöperation to insurance companies that he does to private patients. He ignores them. With private patients he discusses procedures; why not with insurance companies? The surgeon should have the confidence of the insurance company that chooses and pays him.

If a company asks you to transfer a patient to another surgeon who usually is their chief surgeon, do not refuse or be perturbed. There is usually a very good reason from the carrier's standpoint for the transfer, and no reflection on your ability is intended.

#### FEAR PSYCHOLOGY IN PATIENTS

In industrial surgery "fear psychology" or whatever you like to call it, is an important consideration in the treatment of patients. In back injuries, for example, do not discourage a man or



add to his mental infirmity by telling him what an extended disability he will have. Back injuries from experience are of uncertain duration and serious harm is often done by an attending surgeon who goes into too much detail about an injury of a trivial character.

How often do you see compression fracture of vertebrae or markedly displaced fractures of transverse processes heal with a very low permanent disability in cases where the encouragement of neurosis has not been fostered by injudicious medical advice? In cases of a simple crack of a transverse process, patients after being informed of these facts have given up and become cripples for life; whereas others with severe and displaced fractures have returned to work in a few months. Do not add to the mental infirmities or fears of any patient. Avoid all unnecessary casts, tailor braces, and other apparatus, unless there is very strong indication for their use.

8. *Medical Expenditures.*—Do not make a practice of having patients come in day after day unless a redressing or personal observation is absolutely necessary. This adds unnecessary costs. If clinically there is no evidence of fracture do not burden the company with additional costs of x-rays.

An x-ray, because of poor quality, from which a diagnosis cannot be made, is not an x-ray, and charge should not be made therefor. Lack of technique or errors on the part of the attending surgeon or x-ray technician are not a basis of charge against an insurance company.

9. *Special Examination and Special Reports.*—For general use the following outline is of benefit:

1. Description of original injury: Carefully and completely diagnosed.
2. Present condition: Picture of condition today with reference to original injury—what progress can be definitely noted.
3. Future prognosis: Relation of condition today to end-result. What additional progress is reasonably certain and what is problematical.
4. Type of treatment indicated.
5. Period of disability and treatment.
6. Permanent disability—amount, if any.
7. Record of present rating: Compare present physiotherapy reports with report made on entrance to physiotherapy department.
8. Contributory factors: Arthritis—preëxisting. Constitutional conditions, etc.
9. Conclusions.

Some doctors think they are creating good will with insurance companies by getting the patients off their books and back to work before they are ready to go. Cases thus treated only add to permanent disability costs.

Classical operations should not be performed if in their very nature they are obviously experimental.

#### VALUE OF PHYSIOTHERAPY

It is reasonable to expect that the advanced surgical procedures for rehabilitation, and associated treatment, now in vogue would increase medical costs, but if these procedures are justified, compensation payments, including permanent disability

awards should be reduced accordingly. On the contrary, these costs have risen. What is the explanation? In no small measure it is due to an abuse, as an easy source of income, of wartime procedures such as physiotherapy, and purely experimental operations that do not always produce results. Physiotherapy must be intelligently applied. Work therapy is better than any physiotherapy if the patient is capable of doing the most menial labor.

The value of physiotherapy was confirmed by results in treating war invalids when surgery alone was found not to be always sufficient. Many special physiotherapy institutions were organized throughout Europe and the United States. If its use was indispensable during the war, in time of peace physiotherapy can be also of great help in treating injuries of all kinds including industrial injuries. The value of this additional line of medicine can be appreciated only by those who have observed the results achieved.

Physiotherapy is employed (1) to increase blood supply in parts affected, improve the circulation, nutrition and metabolism, to absorb infiltrations and effusions and quicken restoration of tissues to normal; (2) to build up muscles that are weakened from disuse after immobilization of fractures, etc.; (3) to reduce or lessen stiffness of joints following long application of splints or after joint injuries; (4) to stimulate nerves if they are in a state of paresis due to injury; (5) to combat infection.

According to conditions diagnosed different means of physiotherapy treatments are applied, alone or in combination.

Galvanic and faradic currents are also used for diagnostic purpose, for nerve and muscle-testing in peripheral and some central nerve lesions. The reaction of degeneration can be made, the diagnosis and prognosis indicated, and malingering exposed.

In nerve injuries a combination method of radiant heat, massage, electricity in form of diathermy and interrupted galvanic and faradic currents is used to prevent accompanying atrophic, sclerotic, and fibrous changes and to help to regenerate the structures affected and prevent permanent stiffening and ischemia. This method gives very satisfactory results; for instance, in facial palsy, if started soon enough after the injury.

For the union of fractures, stimulating technique is in order.

For the chemical effects of ionization the galvanic current is used.

In industrial medicine one has to deal with infections and skin diseases, occupational or otherwise. This is a field for actinotherapy. Radiant light and heat from carbon filament lamps will destroy many germs. Ultra-violet rays destroy all bacteria and fungi after a short exposure. For this a water-cooled quartz lamp is used locally with pressure to produce anemia and to enable ultra-violet rays to penetrate. Simultaneously with the local treatment general radiation with an air-cooled lamp gives better results by producing



various chemical changes in blood, by increasing the leukocyte count and calcium content, as has been proven by experiments. Staphylococcic infection yields readily to ultra-violet therapy, as in furunculosis or infected lacerations. The air-cooled lamp is used alone in cases of secondary anemia or malnutrition, as in lead poisoning; or may be used in conjunction with iron and arsenic injections.

The above outlines briefly some of the uses of physiotherapy in industrial medicine. Injudicious or protracted use of physiotherapy or use of it without a diagnosis should be condemned.

To control the effects of physiotherapy on patients, we use the following scheme:

Patient is first examined and diagnosed.

The findings are expressed in the form of physiotherapy report on special physiotherapy report blanks, corresponding to the part of the body that was injured.

Patients are examined periodically and progress is similarly noted.

Treatment is stopped when there is no further progress.

#### CONCLUSION

It is incumbent upon our Industrial Accident Commissioners and those associated with them to uphold the law and protect the interest of the workingman. It is also our duty as members of our profession to protect them. Our efforts must not be selfish or show any attempt to curry favor with insurance companies. We must live up to the ideals of our profession and work to maintain its reputation. We must be most concerned with the recovery of the patient as a matter of professional endeavor, over and above any provisions of the law.

An employer should seek the best medical or surgical attention. An employee does not gain by injury, but rather loses his earnings in excess of his compensation; and his family are deprived of income, and therefore suffer with him. The employee knows that when injured he quickly goes into debt because of the loss of his earnings and income, and therefore he is anxious to be restored to health as a wage-earner and be able to fulfill his duty as a provider and avoid becoming a burden on the community.

Insurance companies and employers are interested in results. Get the injured back to light work, but not to the detriment of the injured. Employer's rates are influenced by losses. Your care of the man is not a special privilege for you. The Workmen's Compensation Act was not created for the benefit of the medical profession or others that might benefit under it, but for protection of the workingman, and is today subscribed to whole-heartedly by all intelligent employers. Insurance company adjusters are not ordinarily medical men. They are interested in the results obtained by whatever treatments are adopted. In medico-legal problems, whether in court or before the Industrial Accident Commission, know your subject and speak the truth without bias.

Do not violate the ethics of the profession by accepting rebates or cutting rates. This will not be asked if the doctor is giving value received, because statistics show the best service is the most economical.

Whether a patient be a private patient or under the jurisdiction of the Industrial Practice Act we must not have two methods of treatment. Treat both alike. We cannot have two kinds of manners. The patient comes first. Wait on him, serve him and rehabilitate him as a wage-earner.

Efficiency in medical industrial practice cannot exist without regulations. Insurance companies' "paper work" and their requests are tiresome and at times irritating, but they are necessary nuisances.

If you wish to pursue industrial practice realize not only that efficient surgical service is demanded, but that the paper work is also required. Writing reports does not make an industrial surgeon.

The five major requirements for an industrial surgeon are:

1. To treat a patient as a man, and act as man to man.
2. To have a thorough knowledge of the Compensation Act.
3. To have an accurate knowledge of insurance regulations.
4. To have real surgical ability and equipment.
5. To obtain good results; for apologetic explanations are not wanted in industrial practice.

A physician or surgeon who would make a success of the exacting practice of industrial medicine must specialize in the work attempted, and must give sympathetic and understanding care. These are now conceded to be the fundamentals in industrial practice.

560 Sutter Street.

#### DISCUSSION

C. A. DUKES, M.D. (426 Seventeenth Street, Oakland).—Doctor Eaves, in his paper on "The Industrial Physician—His Relation to Patient and Carrier," has discussed a very interesting and timely subject.

Under requisites of an industrial surgeon, Doctor Eaves aptly states that the social status of the patient should not have any bearing upon the type of treatment nor the manner of treatment. The surgeon's equipment should be of the character to give the most modern and best treatment available for the conditions for which the patient must be treated. The untidy surgery may not necessarily be dirty, but certainly is not to be compared to the modern bright room with its tile floor and shiny equipment.

I am glad to have him speak of the type of men who today are doing industrial surgery. They are alert, energetic, and thoroughly qualified. Many of us can remember the old-time industrial surgeon who handed out the black pills from an untidy office, giving very little thought to diagnosis or the patient's general condition.

In speaking of the amount of work necessary to make an industrial surgeon financially successful he again emphasizes the success of group medicine because, in handling a large industrial practice, it is necessary to employ or have associated with you a varying number of assistants whose work should be directed by a head whose ability is unquestioned and whose personality lends confidence to those placed under his care.

Another of the points made in the paper is the necessity for accurate and prompt clerical work. The



average physician is not a good clerk; consequently, if he is to do much industrial work and keep his reports properly cared for, it is necessary to have a trained clerical force. Both the nurse and stenographer will require definite training in this type of medical reports.

I am glad the doctor has brought out so well the relationship which should exist between the insurance carrier and the doctor, and also his responsibility to the state.

Physiotherapy should be carefully studied not only as regards apparatus, but as to psychological factors that are necessary to return confidence in the injured employee as to his future and his ability to return to the labor for which he is fitted.

Further emphasis will not be amiss on the fact that an industrial surgeon is no different from any other surgeon excepting in the classification of the work with which he will come in contact. He must be thoroughly trained, a hard worker, and have the mental equipment necessary to handle people of meager education.

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OTTO R. FRASCH, M. D. (315 Montgomery Street, San Francisco).—The Workmen's Compensation Act holds the employer liable for compensation and medical care for all injuries sustained by his employees in the course of and arising out of their employment. In nearly all cases the employer's liability is assumed by an insurance carrier. Since the insurance carriers are thus obliged to furnish and pay for medical aid and for any temporary or permanent disability incurred, it is natural that they should have a considerable interest in the medical status and treatment of the cases for which they are responsible. It is essential that the surgeon should keep the insurance carrier promptly and fully informed of the medical aspects of the case so that the insurance carrier can properly pass on the claim, set aside the proper reserve for the injury and, if it so desires, arrange for further medical service by specialists or by consultation, etc. Doctor Eaves has described in detail the essential points to be covered in such reports.

The idea seems to prevail in some quarters that insurance carriers are interested only in securing the cheapest possible medical service. This is probably a hold-over from the attitude toward the old style company doctor, whose work in many cases was of a very perfunctory nature. Since, however, insurance companies are obliged to pay the injured employee's compensation for the period of his temporary disability and are often obliged to pay large sums for permanent disabilities, they have learned that in most cases "cheap" medical service is costly. Their interest is in the total cost of a case, including compensation for permanent disability if any, compensation for temporary disability and medical costs. Considered from that viewpoint, there is no conflict between the interest of the injured man, the insurance carrier and the surgeon, who is sincerely interested in rendering the best possible service. As a result of the Workmen's Compensation Act, which definitely fixes liability for temporary and permanent disabilities, we for the first time have a definite check on the end-results of different types of treatment for various types of injuries in a large series of industrial accident cases. The results are tabulated and compared; and the methods that experience has proven the better are adopted, the poorer methods dropped. Insurance carriers are also filing their experiences with the different surgeons who do their work, and there is a natural tendency to prefer the surgeons who secure the best results. The first great requisite for the industrial surgeon is, of course, surgical judgment and skill. I should like to stress also the importance of coöperation: coöperation with the employer in rendering prompt service to injured employees that they may be returned to work as soon as possible; coöperation

with the injured man that his confidence will be maintained and his morale sustained—an important factor in many types of industrial injuries; and coöperation with the insurance carrier that he may better fulfill his obligation to employer, doctor and injured employee.

## THE LURE OF MEDICAL HISTORY

CLAUDE BERNARD

By JEAN OLIVER, M. D.  
San Francisco

DOUBTLESS the preacher spoke from the depths of a profound knowledge when he lamented, "There is no new thing under the sun." For when we seek the origins of even the most miraculous of our modern inventions, the deeper our study goes the less able are we to pick out from the countless numbers who have labored at the edifice of mankind's achievement any few whose contribution was more than a tiny addition to the work of his predecessors. Occasionally some fortunate one places the final and perfecting touch to that which has been laboriously prepared and the world, astonished, hails a creator.

But these are, in the stricter sense, the lesser heroes of mankind's advancement. Many are the hands willing, if the METHOD be shown, for with a method results must fall to the industrious and to the fortunate. Behind these men, whose names and images are in every mind, stand others of whom we think less often, perhaps because their work, not so obvious in its immediate results, requires for its appreciation more attention than the rush of today's busy life affords. These latter are they who turned the course of man's endeavor into new and fruitful fields and who showed the gleaners where the harvest was richest. In medicine, such a one was Claude Bernard.

Medicine had advanced, halting at times, but always forward, and at each step we see the result of some new method. The first formulations of the Greek physicians that were guided by classical philosophers; the dubious gains of the medieval school soon lost in the maze of dialectic and logic; the breaking of these chains by the new humanities of the Renaissance, this promise only to fall into the sterile finality of the systematists. During all these years the clinician, from his post at the bedside, had observed, described and deduced to the limit of human acuity. The anatomist had exhausted the wealth of gross pathology and though Virchow had only begun his application of the microscope to the study of morbid structure, this method, too, could only hope to approach a similar limit. Bacteriology was to add tremendous gains in its restricted field. The new chemistry and physics awaited a method of application to vital phenomena.

Such had been the course of the acquisition of medical knowledge when in 1865 there appeared "L'Introduction à L'Étude de la Médecine Expérimentale." The new era was established.

Medicine of today is experimental medicine, not only in the laboratory but in the clinic and at the





CLAUDE BERNARD

bedside, and if this fact is not recognized by some, it is because the experimental method has become such an intimate part of our intellectual mechanism that, like the action of our vital organs, we no longer feel its functioning.

It is the revelation of these mental processes whose significance we do not appreciate, that makes a reading of Bernard's book so fascinating. Experimentation had of course been used from the time when man first discovered that sticking a burnt finger into cool mud was a more soothing procedure than some other, but the *method* of its use had advanced remarkably little from this primitive origin until Bernard. Galen and the Alexandrian schools had performed their "vivisections," and throughout the whole development of medicine isolated experiments had borne fruit, but in "L'Introduction" we find the first orderly analysis, development and application of the method. This, the work of Bernard, has directed the whole course of modern medical thought.

But still greater significance is attached to the work of this genius. Not only have its results during the last generation been astounding, but, unlike the other methods of attack which man has brought to bear on the mysteries of vital phenomena, this method approaches no limit. Each gain unfolds a new vista and the method is re-applied to infinitely increasing achievement. And so though we may never reach the horizon, at least, by following in the footsteps of Claude Bernard, we shall always advance.

Stanford University Medical School.

## CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

### INGUINAL HERNIAS CONTAINING FALLOPIAN TUBES\*

CASE REPORT

By ALANSON WEEKS, M. D.

AND

G. D. DELPRAT, M. D.

*San Francisco*

WHILE hernia in the male is a fairly frequent occurrence, its presence in the female is less common; and even more rare are those cases in which the hernial sac contains some or all of the internal genital organs.

In 1904, Jopson<sup>1</sup> made an exhaustive study of the subject and compiled from the literature what he believed at that time to be a complete list of the cases in which the uterus had been observed to be present in the sac of inguinal or femoral hernia. Ventral forms, which were most frequent and which resulted from the separation of the rectus muscle during pregnancy, were not considered. Twenty-one cases were reported up to 1904, his case being the twenty-second.

In 1912, H. P. Heineck<sup>2</sup> after reviewing the literature of the current English, French and German periodicals for a period from 1890 to 1910, was able to collect one hundred and thirty-seven such cases. Heineck's paper presents the subject in a most scholarly and critical manner, and a great deal of care is exercised in selecting the cases so that only true hernias containing the uterus or adnexa are included. His series of hernias is divided into the following types: ventral, inguinal, femoral, obturator, and ischiatic, which were proven either at operation or autopsy. The entire series of cases is presented in detail so that one readily may check over any point of interest. The observation is made that none of the cases were correctly diagnosed before operation.

Since 1912, several cases have been reported. Delepine,<sup>3</sup> in 1921, reports a case of strangulated femoral hernia containing the fimbriated end of the tube.

Birman<sup>4</sup> reported a case of a fallopian tube two and one-half months gravid in the hernial sac. He was able to collect four such cases on record.

Vas<sup>5</sup> reported a case of strangulated, right-sided, inguinal hernia in a girl of sixteen years. This case had the two ends of the tube in the abdominal cavity with the intermediate portion bound in the canal.

#### RELATION TO EMBRYONAL DEVELOPMENT

The facts which govern the occurrence of hernias in the male apply in the same way to the female. In the male, the descent of the testes during fetal life involves the formation of a processus vaginalis peritonæi, which in later life

\* Read before the General Surgery Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30-May 3, 1928.



ordinarily is occluded in its middle portion, the distal portion remaining to form the tunica vaginalis of the testis. Should the proximal portion of this peritoneal fold persist after the usual period, a funnel-shaped depression of the peritoneum in the lower portion of the pelvis remains, into which a hernia may be forced. In the female, a similar fold of peritoneum gives rise to the canal of Nuck, which accompanies the round ligament and may extend with that structure to its termination in the labium majoris. As in the case of the male, this canal has ordinarily disappeared before birth, although portions of it may resist obliteration. Should the middle portion persist after the usual period, a hydrocele of the canal may be present. Should the proximal portion persist, a funnel-shaped opening in the lower part of the abdominal cavity is again present, and it is into this structure that herniation may occur.

#### CONTRIBUTORY FACTORS

Herniation may be the result of a number of factors, but probably the most important is increased intra-abdominal pressure. This may be either acute, as in guarding against a blow or a sudden strain, as when attempting to regain one's step after a fall; or may be due to a more prolonged straining as may occur in constipation. Actual blows on the abdomen probably are very much overemphasized in the formation of hernia and serve rather to draw attention to a preëxistent hernia. Laxity of the peritoneal support of the abdominal organs may favor their apposition to the internal orifice of a hernial sac, it being evident that organs that are firmly supported in the abdomen cannot be extruded. The organs having the most mobility in the abdomen and the loosest attachment in the abdominal cavity are the small intestine and the omentum; and this fact, without doubt, is the explanation of the frequency of these structures occupying the hernial sac. Inasmuch as the female organs are quite firmly anchored to the lower and anterior portions of the pelvis it would be very unusual to find these structures occupying the hernial sac, unless there be an anomalous or congenital laxness of the supporting ligaments; namely, the round ligament, the broad ligament and the uterosacrals. This laxness may occur later in life following repeated pregnancies. One would therefore expect to find hernias containing these structures either early in the life of the female (in the case of the presence of a congenitally patent canal of Nuck) or later in life when obesity or cachexia may have reduced the strength of the abdominal wall and when repeated pregnancies may have loosened the supporting ligaments of the uterus, fallopian tubes and ovaries.

From the care of a large number of inguinal hernias in the male, both in industrial and private practice, we have become convinced that there is always a predisposing anatomical factor present, and that this is, first, either a wide internal abdominal ring with funnel-shaped peritoneal fossa,

or second, an actually patent peritoneal canal occupying the inguinal canal.

The acute pain of which patients complain in the inguinal region at the time at which the hernia is supposedly sustained is interpreted as being due to the forcing of some abdominal structure into a position that nature had previously prepared for its reception. The same argument would hold for inguinal and femoral hernias in the female. In the case of direct inguinal hernia the sac issues from the abdomen medial to the inferior hypogastric vessels, and a pre-existing weakness of muscle and fascia is the determining factor. A considerable bulge of the preperitoneal fat in the space between Poupart's ligament and the conjoined tendon is frequently encountered in patients in whom an actual hernia is not yet present, but we believe that hernias developing from this anatomical foundation are slow in development and not of the acute or "traumatic" type.

In regard to femoral hernia, there is little difference in etiology. Whether a hernia develops into an inguinal or a femoral depends on some anatomical accident which may direct the sac below or above Poupart's ligament. Our experience with obturator and ischiatic hernias is very limited.

Hernias in the inguinal region occurring in the female have frequently been associated with underdevelopment, malformation or absence of internal or some of the external genitalia, as illustrated by a case of Deutschman,<sup>6</sup> who found a bilateral hernia in a woman of thirty-five. The right side contained a cystic ovary and the uterus; the left side contained the left tube and ovary. This case had an absent vagina and the uterus was a solid mass of tissue without a uterine cavity. Other abnormalities may consist of bicornuate uterus, imperforate vagina, absence of vagina and cervix uteri, etc. Cases illustrating these abnormalities are quoted in detail in Heineck's article.

True sliding hernias are not uncommonly encountered which contain part of the internal genital organs in the female; occurrence, symptomatology and treatment being quite similar to those of the more usual type.

#### SYMPTOMATOLOGY

The symptomatology of hernia of the type under discussion is not different from that of the ordinary hernia in which other structures may be included in the sac. The presenting symptom may be merely pain in the region of the hernia with swelling which is more marked on standing or on straining. In cases where the tube and ovary occupy the hernia, however, it is not uncommon that the sac should be painful and more swollen during the menstrual cycle than at other times, and this fact is of the greatest importance in making accurate diagnosis. The symptom, however, is absent very frequently. This is easy to understand when one finds a hernial sac occupied only by a loop of a redundant tube, both ends of which are still within the abdominal cavity, or in a case where only the fimbriated end of the tube occupies the hernial sac. Should the neck of the sac be tight, interference with the blood supply and



strangulation of the occluded portion may follow. The symptomatology of this is identical with the more common condition of a strangulated intestine or omentum, giving excruciating pain, extreme local tenderness and nausea and vomiting.

#### DIAGNOSIS

Diagnosis of a hernia is based upon the usual findings of swelling and impulse on coughing and occasionally local pain. The actual diagnosis of the contents of the hernial sac may be impossible, except that the increase of the pain and swelling during the menstrual cycle should lead one to suppose that the included tissue is most probably related to the reproductive system.

#### CASE REPORT

A patient, aged 42 years, contracted gonorrheal infection on August 5, 1925. Three days later, she presented a profuse vaginal discharge and was treated at her home. About a week later, it was evident that the inflammation had extended into the pelvis on both sides and the patient became acutely ill, so that on the third of September it was necessary for her to go to a hospital, where she remained until the second of October and received appropriate treatment. On the 17th of October, recurrence of the acute abdominal pain ushered in a second attack of the pelvic infection, which lasted about three weeks. During the second stay in the hospital it was necessary for the patient to receive a transfusion on account of the depletion of hemoglobin, due to the virulence of the infection. Under treatment, however, the acute pain and inflammation subsided and the patient was again able to carry on her work. Following the subsidence of the more acute condition, the patient was troubled for the next year with a great deal of pain in her periods, which lasted some ten days and were preceded by four or five days during which she had a temperature of from 99 to 100.

Examination early in 1926 showed a thickening in the region of the right tube which was the result of a tubal abscess. The uterus was in good position and fairly movable. The pelvic organs were not particularly painful although thickening could be felt on the left side. What felt like prolapsed ovaries were made out down in the bottom of the pouch of Douglas. The patient was watched and given symptomatic treatment.

Early in December, 1926, in addition to the above findings, a fullness was noted around and along the right inguinal ligament. The thickening of the tissues extended some two inches above Poupart's ligament and one and one-half inches below it. All this region was very tender. On palpation through the vagina one would be in doubt that the mass around the ligament was in any way connected with the thickening of the right adnexa. Palpating fingers led one to believe that it was a separate infection, although it seemed most probable that this swelling in the right inguinal region was an extension from the pus tube on the right side.

On the 17th of December, 1926, just before her next period was due, the patient awakened in the morning with a pain in the right inguinal region which was so severe that she could not extend her thigh, and had to keep her thigh in a semiflexed position while lying in bed. Extension of the thigh caused excruciating pain in the inguinal region. At this time she also had a fever of 99 and chills. She was transferred to a hospital and given hot compresses to her right inguinal region. There was also considerable

tenderness in the right lower quadrant, besides the superficial tenderness. The white count at that time was 15,000, 81 per cent polymorphonuclears. By the 22nd, the pain in the right inguinal region had practically subsided and the patient felt much better. On the 29th, it was decided to operate and perform a double salpingectomy to remove the source of infection in the pelvis.

*Operation.*—Low, midline incision. Uterus three times normal size with no adhesions on it. The left ovary was normal. The left tube was bound to the ovary at its fimbriated end; not much enlarged. This tube was removed. On the right side a hard mass was felt reaching into the internal inguinal ring. A conical tip of the cecum extended right up to and into the inguinal ring. When this was separated from the above mass a raw surface was left on the cecum which was invaginated and peritonealized by a purse string suture. After separating the head of the cecum, a knuckle of the sigmoid, and the ovary from this mass, it was found to be a knuckle of the right tube at its middle, herniated into the internal ring and undoubtedly abscessed extraperitoneally at one time. No liquid pus was found. The ovary was very much enlarged, filled with an unruptured follicle and cystic. The right tube and ovary were removed after the bowels had been separated from the mass leading into the internal ring. No liquid pus was found and no fluctuation could be felt between two fingers, one inside the abdomen and one without at Poupart's ligament. A small curet was inserted through the internal inguinal ring and as much as possible of the substance of the tube enclosed in the inguinal canal was curetted out.

Because of the probability of infection in the region of the right tube, a rolled rubber drain was placed at the bottom of the pelvis, more on the right than on the left side.

Following the operation, the patient had a stormy convalescence which was marked by a flare-up of the infection in the inguinal region and a fecal discharge from the wound which was shown by subsequent x-rays to come from a fistula leading down to the cecum. She continued to have pain and tenderness in the inguinal region, which was undoubtedly due to old infection continuing at the site of the right canal.

The pain in the right inguinal region persisted until about the beginning of February, 1927, but the fecal fistula persisted somewhat longer and spontaneously healed.

This case illustrates a type of inguinal hernia in the female into which was drawn a knuckle of the tube; thus resembling the case of Vas quoted above, and the extra-abdominal portions of this tube became palpable and extremely tender during the course of an acute inflammatory disease. It had not been noted prior to this inflammation, and it is impossible in retrospect to state whether it had always been present or whether it had resulted from the actual acute inflammation, which might have drawn it in apposition to the internal abdominal ring by the formation of fresh adhesions which later contracted into fibrous tissue and drew the tube still further towards the inguinal canal.

384 Post Street.

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## NONOPAQUE FOREIGN BODY IN BRONCHUS\*

### CASE REPORT

By JAMES B. BULLITT, M. D.

*San Jose*

THERE is nothing new under the sun. I doubt very much that the case I am to report presents a new symptom; it does, however, present a rather unusual symptom.

When a nonopaque foreign body lodges in a bronchus and does not immediately occlude it, local irritation with cough, persisting a longer or shorter time, is produced, but no other clinical or roentgenological evidence. If, however, a bronchus is occluded, one of two things happens. Either air is prevented from entering the lung parenchyma served by the occluded bronchus, with subsequent absorption of air and resultant atelectasis; or the foreign body acts as a valve permitting air to enter the affected portion of lung but preventing its expiration, producing thus an obstructive emphysema of the affected side and area. Accompanying this is more or less compensatory emphysema of the opposite, unaffected side.

When atelectasis occurs the mediastinum and heart are displaced toward the affected side, the diaphragm is elevated, the degree depending on the area of lung affected. On the other hand, in obstructive emphysema, the heart and mediastinal structures are displaced toward the unaffected side, the diaphragm being depressed.

The roentgen signs are dependent on the aforesaid mechanical conditions. In atelectasis there is, on the affected side, increased density, elevation of the diaphragm, displacement of the heart and mediastinal structures toward the affected side on inspiration.

In obstructive emphysema there is increased translucency of the affected side, depression of the diaphragm and displacement of the heart and mediastinal structures toward the unaffected side. With expiration the heart and mediastinal structures are displaced toward the unaffected side.

These facts are recalled to your minds just as a background to the case reported.

### CASE REPORT

A girl three years of age, while eating walnuts on November 22, 1927, started to cry. She choked, had a hard time getting her breath, and coughed for an hour or two. She came under my observation after the expiration of almost a month, on December 19. During this period she had shown slight temperature from time to time, with moist râles in lower half of right chest, leading the attending physician to a diagnosis of probable bronchopneumonia.

Radiograms showed slight depression of right side of diaphragm, the two sides on about the same level on expiration. There was slightly increased translucency of lower third on right, scarcely recognizable compensatory emphysema on left. Fluoroscopically

the right side of diaphragm showed practical immobility; the left side of diaphragm no marked increase of excursion.

The most striking fluoroscopic observation was the marked displacement of the heart to the affected (right) side with each inspiration, this constituting the unusual roentgen symptom to which I have referred. This displacement was very pronounced, the heart returning to normal position on expiration, thus simulating the displacement which occurs ordinarily in atelectasis. The observation of lateral movement of the heart is of course not new, occurring commonly in both atelectasis and in obstructive emphysema. In the latter, however, the displacement is toward the unaffected side with expiration, the heart returning to the median or near median position with inspiration.

On December 27, six days after the first observation, without interference, the child had a violent fit of coughing and expelled a large piece of walnut kernel. Thereafter fluoroscopic examination and radiographic examination showed a practically normal chest with a normally functioning respiratory mechanism.

The outcome in this case was most fortunate as, according to Chevalier Jackson, only about 2 per cent of such organic foreign bodies are expelled spontaneously.

208 Sainte Claire Building.

## APLASTIC ANEMIA DUE TO BENZOL POISONING

### REPORT OF TWO CASES

By JOHN MARTIN ASKEY, M. D.

*Los Angeles*

CHRONIC benzol poisoning with an aplastic type of anemia occurring in workers in can factories was first pointed out by Selling<sup>1</sup> in 1910. Here a solution of rubber in benzol was used as a solder substitute to rim the margins of the can tops. The evaporation of the benzol led to the poisoning. His classical work established its rôle as a leukotoxin and led to its therapeutic adoption in the treatment of leukemias.

Industrial precautions to prevent accumulation of benzol vapor have reduced the occurrence of poisoning. The following cases, one identical with Selling's, show that sporadic cases may occur and that the danger still is present.

### CASE REPORTS

CASE 1.—F. M., a Mexican, age 22, worked in a can factory since 1921, on the "dope machine," which covered the can tops with a solution of rubber in benzol. He had worked intermittently eight or nine months of the year until his first appearance. He first noticed headache, dizziness, weakness and a feeling of jocularity as though he were "half drunk." It was difficult to keep workers on the machine because of the headache and dizziness produced. He gradually became accustomed to the work, noticing no further trouble until May, 1927, when after three months steady work at the "dope machine" he noticed his gums bled easily when he brushed his teeth. He progressively grew weaker and his skin more pallid until his admission to the Los Angeles General Hospital on August 12th. His gums were then bleeding spontaneously. He was severely anemic with 2.3 million red cells; 45 per cent hemoglobin (Sahli); his white cells were reduced to 2100 with a lymphocytic percentage of 90. Absence of variation in size and shape of the red cells, characterized his anemia as an aplastic anemia. A platelet count revealed only 100,000, and as a corollary of the thrombocytopenia,

\* Read before the Radiology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



the bleeding time (Duke) was prolonged to 25 minutes, and the clot failed to retract after 72 hours. The tourniquet test, however, was negative. His bleeding from the gums was spontaneous and steady. Within two weeks his red count had dropped down to one million, his white cells to 600, with 90 per cent lymphocytes. His condition was very critical. His lips were crusted with blood, his gums purplish and spongy. There was no other mucous membrane bleeding; nor any purpuric spots or petechiæ.

Because of linguistic difficulty, no clear-cut history of exposure to benzol had been obtained. The case was considered as an idiopathic aplastic anemia, and based on Gibson's<sup>2</sup> report of recovery of a case following adrenalin therapy, adrenalin injections were begun, supplemented with ephedrin sulphate by mouth. Apparently coincident with this therapy, improvement began; the red cells rose gradually, the granulocytes became normal in percentage, the platelets returned on the smear, and the bleeding time became normal and the clot retracted. The oozing from the gums stopped and on December 12th, four months after his admission, he was discharged with 4.03 million red cells, 80 per cent hemoglobin, and a normal differential count. He had gained fourteen pounds. His diagnosis was that of an idiopathic aplastic anemia.

On May 2, 1928 he reappeared, saying the bleeding from the gums again was returning, that he had lost weight and progressively was losing strength. At this time a clear-cut history of exposure to benzol was obtained. He had returned to his work at the can factory in March and had worked daily at the "dope machine." A blood count showed his red count to be 3.3 million, hemoglobin 75 per cent, but the white cells reduced to 2100 with 45 per cent lymphocytes. The bleeding time had increased to eight minutes, and the clot after 24 hours was not retractile. The platelets on the smear were very much reduced.

*Comments.*—A visit to the plant showed a very definite odor of benzol hovering around the "dope machine" where he had worked. Out of seven other men working on the machine, none of them ever had had any bleeding symptoms. Most of them had had transient dizziness when first on the machine. One had worked eight years steadily, another three years, without any trouble. The company superintendent said in the last fifteen years he has known of no case outside of this one. They are now changing to a different solder substitute without benzol as the solvent, so that the hazard of benzol poisoning there will be removed.

*CASE 2.*—An American, age 42, began working November, 1927, at a plant which painted advertising panels for billboards. Physically he was in robust health. His past medical history revealed no hemorrhagic manifestations in himself or family. At the plant the old advertising panels, covered with paint were first soaked in lye, which softened the paint. They then were scrubbed with rags, soaked in gasoline to "cut" or remove the lye—this was his work. It was done in a partly enclosed shed, with very little movement of air. He often was busy all day scrubbing the panels, his hands constantly in contact with the gasoline. In November, 1928, a year after beginning work, he first noticed weakness. This rapidly progressed; within two weeks he said his color got as "white as a sheet." He lost eighteen pounds. After two weeks a tooth began to ooze blood. A doctor told him he was "leaded." His ears began to throb and "knock" and believing it was due to several carious molars he had four extracted. The sockets bled for one and a half hours; the bleeding stopped only by

packing. A few days later his nose bled spontaneously and continued for several hours. Packing finally stopped the bleeding, after he was given horse serum. While on the way to a hospital he fainted from weakness. A transfusion at the hospital stopped the bleeding and improved him moderately. He felt strong enough to go home after a week and was advised to eat plentifully of liver. On January 5th he was admitted to the Los Angeles General Hospital. He was markedly exsanguinated. The skin was dirty white in its pallor. His gums were swollen and purplish with bright blood oozing from the bases. Sordes and dried blood covered the teeth. He complained of blurred vision and the eye-grounds showed numerous fresh hemorrhages. Minute petechiæ were present in the skin and a tourniquet test brought out a marked shower. There were no relevant findings in the chest; there was no splenomegaly nor generalized adenopathy. The red cells on admission were 1.2 million, hemoglobin 29 per cent (Sahli), white cells 3300, with a lymphocytic percentage of 67. The platelets numbered only 50,000, the clotting time  $2\frac{1}{2}$  minutes, but the clot was nonretractile. The bleeding time was 26 minutes. The blood smear showed no anisocytosis or poikilocytosis, and the platelets practically were absent.

On questioning, he first gave painting as his occupation, and plumbism was considered, but the blood picture was considered atypical. Until the history of exposure to benzol was elicited idiopathic aplastic anemia was the diagnosis. He was transfused, and immediately the spontaneous bleeding from the gums stopped. After four days it again started. For four months he has stayed at the hospital, his red counts never exceeding 1.5 million, and the white cells averaging 2500, with 65 per cent lymphocytes. The bleeding time has averaged 20 minutes. The bleeding has been controlled only by repeated transfusions. At first the benefit lasted only a few days, but more recently the bleeding has been controlled for a week. Thirteen transfusions have been given to date, and though numerically his blood picture has not improved, subjectively he is better. It is possible his bone marrow may yet begin to regenerate if the transfusions be continued.

*Comments.*—The gasoline used in scrubbing the panels was a mixture of California gasolines. Produced by the usual distillation process it contains as much as 17 per cent of the aromatic hydrocarbons, of which benzol is the basic compound. Gasoline produced by the "cracking process" often contains 25 to 40 per cent aromatic hydrocarbons.<sup>3</sup> Thus the percentage of benzol present in the mixed gasoline never is constant, but its presence is constant. It is interesting that a fellow workman has had no symptoms. The use of gasoline has been discontinued at this plant, so that the benzol hazard here too has been eliminated.

*Conclusions.*—(1) The use of benzol industrially is still hazardous. The ever present danger of poisoning should be recognized and precautions taken to detect it early. A drop in the white cell count is the first evidence.

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# BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

## ENDEMIC DISEASES OF THE PACIFIC COAST

### Rocky Mountain Spotted Fever

**E. C. Dickson, San Francisco.**—The incidence of eight cases of Rocky Mountain spotted fever in California this season attracts attention to this interesting disease. Endemic in the mountain regions of the American Northwest, it is most prevalent in Montana, Wyoming, and Idaho, although a moderate number of cases have been reported from Washington, Oregon, California, Nevada, Utah, and Colorado, and a few from North and South Dakota, Kansas, Wisconsin, and Illinois. The incidence in California is apparently limited to Modoc and Lassen counties.

The disease is an acute infectious disease which is caused by a virus which infects rodents and which is transmitted to man by one of the wood ticks and by a rabbit tick. The geographical distribution depends upon that of the infected rodents and these ticks, and is usually in areas of from three to four thousand feet elevation. The tick may become infected when it engorges with the blood of an infected rodent, and since, in its cycle of changes, engorgement is necessary in each stage, it may acquire infection in the larval, nymph or adult stage. Once infected, the tick remains infected during its life, and the female tick may transmit the infection through its eggs to its offspring.

Human infection is always acquired from the adult tick, and the symptoms develop in from three to ten days after the tick bite. The clinical course is that of a prolonged fever accompanied by a characteristic skin eruption. The prodromal period is characterized by headache, malaise and severe pains in the muscles and bones, and the febrile period is often introduced by a chill. The fever is of the continuous type, rising rapidly to 103 or 104 degrees F., on the second day after the chill, and, in fatal cases, may reach 107 degrees. In the milder cases the temperature begins to decline after ten or twelve days reaching normal during the third week, but in more severe cases it may persist well into the fourth week. The decline is always by lysis.

The spleen becomes palpable early in the course of the disease and the liver may be felt. There is parenchymatous degeneration of the kidneys with resulting diminution in the amount of urine, albumin, and many casts. The leukocyte count is usually higher than normal and there is a relative increase in the mononuclear forms. The pulse and respiration rates are rapid and, in severe cases, there may be persistent nausea and vomiting.

The rash appears in from two to seven days after the onset of illness, and is first seen around

the wrists and ankles from which it spreads toward the trunk. It is less marked on the trunk than on the extremities and is more marked on the back than on the abdomen. It may appear on the forehead, and in severe cases involves the palms, soles and scalp. It first appears as rose-colored macules from two to four millimeters in diameter which disappear on pressure. These gradually become more and more hemorrhagic and confluent until the skin is practically covered. The intervening portions of the skin are slightly icteric and the whole picture has been compared to the mottling of a turkey egg. The rash reaches the maximum of its intensity on about the tenth day of the disease, corresponding to the height of the fever. In severe cases it may progress to gangrene on the extremities such as the ears, fingers, toes, etc.

With the decline of the fever the spots fade but they leave a staining of the skin which may persist for a long time, and during convalescence they tend to reappear during sweating, hot baths, etc. Convalescence begins about the fourth week and is very slow.

Diagnosis depends upon the history of the tick bite, the characteristic eruption associated with fever, the leukocytosis with increase in mononuclear forms, and animal inoculation. If a guinea-pig is injected intraperitoneally with blood taken from the patient during the first ten days of the disease, it develops hemorrhagic lesions of the ears and scrotum, associated with a fever of from 102 to 106 degrees F.

The severity of the disease and the death rate differ in different parts. In the Bitter Root Valley in Montana, the disease is a serious one and the case mortality rate is as high as 70 per cent. In Idaho, however, it is as low as 5 per cent, and among thirty-five cases in California there was only one death.

Attempts to control the disease have been directed along the lines of eradicating the ticks by means of a parasite, and prophylactic vaccination of persons who may be exposed to infection. The former procedure is but in its beginning, and nothing can be said of the results. The latter, however, appears to be of definite value since there is a much lower incidence of infection of residents of the Bitter Root Valley who are vaccinated than among those who are not vaccinated, but the protection is not complete, as has been proved by the fact that at least two laboratory



workers who had been vaccinated became infected during the course of their duties. A lasting immunity is established by an attack of the disease.

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### Coccidioidal Granuloma

**W. T. Cummins, San Francisco.**—Coccidioidal granuloma is of interest to the internist, the surgeon, the pathologist, and the veterinarian. Clinically and histologically it resembles tuberculosis more closely than probably any other disease in its miliary and chronic osseous types. Cases, especially of the latter type, which are not proven by laboratory examinations to be tuberculous, should have careful bacteriological or histological examinations to determine the presence or absence of coccidioidal disease. The reporting of cases from Illinois, Missouri, South Carolina, Kansas, Arizona, New Mexico (or Pennsylvania), Washington, Argentina, and Brazil, shows that the infection is not confined to California, for these patients had never been in this state. To date there appear to be 134 diagnosed human cases. The disease has been noted also in bovine bronchial and mediastinal lymph nodes removed at a California abattoir.

Many of the cases of coccidioidal granuloma have had out-of-door occupations, and it has been suggested that the infection may be present in the soil or upon vegetation. A walnut picker developed a coccidioidal lesion of a finger. Insects may harbor and transmit the infection. It seems reasonable to think that there are at least two atri of infection in the human being, namely, the respiratory tract and the cutaneous tissues. The former route would favor the development of the acute miliary type, and the latter the cutaneous ulcers and the chronic osseous and arthritic lesions. Nothing is known as to the mode of transmission and reception of the disease. Case-to-case infection apparently has not occurred.

Experimental studies have been made upon swine, sheep, cattle, dogs, rabbits, monkeys, cats, and guinea-pigs, and this approximates the progressive order of susceptibility to infection. Different strains of the organism seem to vary somewhat in their pathogenicity, but it is usual for intraperitoneal inoculations in male guinea-pigs to produce an early orchitis. In many instances the diagnosis has been made readily by the examination of moist slide preparations of the patient's pus treated with a mild caustic (sodium or potassium hydrate). The organism grows well on the common culture media. With these pathological examinations, including the histological, coccidioidal granuloma is differentiated from blastomycosis. The double-walled, endosporulating cell, which is the infective agent in the former disease, is readily distinguishable from the budding cell of the latter disease. Immunologic studies with complement-fixation and cutaneous reactions have yielded conflicting results in coccidioidal granuloma. Positive precipi-

tin reactions have been obtained and negative agglutinations.

Early amputation of a limb, when the disease was apparently confined to that peripheral part, is the outstanding therapeutic agent up to the present time. This has resulted in the cure, apparently definitely, of four cases and possibly of five others. Crystal and gentian violet, salvarsan, neo-salvarsan, iodids, vaccines, and x-ray have been employed with unsatisfactory results. Jacobson of Los Angeles has reported recently upon the effects of colloidal copper in a series of six cases with three apparent cures and two very much improved. Further investigations are being carried out and their results will be watched with much interest.

It is the writer's opinion that coccidioidal granuloma is a more common disease than is generally believed. All cases of acute and chronic tuberculosis that have been diagnosed only by clinical methods should have adequate laboratory examinations to exclude the possibility of their being coccidioidal in character.

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### Undulant Fever

**John C. Ruddock, Los Angeles.**—Undulant fever, usually known as Malta fever, has been known in epidemic form for a long time. Undulant fever, however, is not strictly a tropical disease, and is more prevalent in subtropical climates than in the tropics. It is prevalent in Mediterranean countries with endemic foci in India, Africa, China, and Manila; and has been known since 1886 when Bruce isolated an organism which he called *Micrococcus melitensis* from patients suffering from this disease. The name Malta fever was given this disease in 1904-5 by a commission appointed by the British Government to study the fever on the Island of Malta. Their investigation revealed the fact that 10 to 15 per cent of the goats on the island had the organism, *Micrococcus melitensis* in their milk, and that the disease was contracted from drinking the milk from these infected goats.

From work done by Holt and Reynolds in 1925 it was concluded that undulant fever, or Malta fever, existed in the United States along the Mexican border, and had probably been present in Texas, Arizona, and New Mexico from fifteen to forty years. In addition to this belt, sporadic cases of undulant fever have been reported throughout the entire United States, and during the last year there have been about a dozen cases reported in southern California and Nevada.

Until five years ago all cases of undulant fever in this country were thought to be the same disease as that prevalent in the Mediterranean countries, but this was disproved when Keefer reported a case in the Johns Hopkins Hospital due to *Bacillus abortus*, and later corroborated by Evans, who isolated the same organism from several cases in an outbreak of undulant fever in the southwestern United States. It was evident in these outbreaks

that drinking goats' milk had not entered into the development of the epidemic.

A long series of experiments has now been completed by Evans, Meyer, and others, proving beyond a doubt that *Brucella melitensis*, the cause of Malta fever, and *Brucella abortus*, which is the causal organism of endemic abortion of cattle and hogs, are closely related organisms. In order to correlate the knowledge of this disease, Meyer and Shaw proposed that the entire group be named *Brucella*, in honor of Doctor Bruce, who isolated *melitensis* in 1886. This name has been generally adopted, and these organisms are now known in the literature as *Brucella melitensis* and *Brucella abortus*.

Bacteriologically, any classification can only be made by means of the agglutinin absorption tests, as the cultural characteristics are all identical.

It is now an established fact that *Brucella melitensis* var. *abortus* may infect man, and also that this same organism causes contagious abortion of cattle and other domestic animals.

No case can be considered proved unless the agglutinin absorption tests are carried out because of the cross-agglutination among the various strains of the *Brucella* group and with the causative organism of tularemia.

It is to be noted that the majority of the reported cases of *Brucella abortus* infection which have been recognized in this country were found by a few observers, who, having had their attention directed to the disease by the recognition of one case, were able to find other cases by looking for them.

Human *abortus* infections have also been reported from other countries. Bevan reports thirty-five cases from South Africa due to *Brucella abortus* in 1925. Several series of outbreaks of *abortus* infections have occurred in Italy since 1925. Auchie gives a statistical table showing the alarming presence of *abortus* fever in France. From 1920-24, 952 cases; 585 of which were confirmed by laboratory methods.

There is no specific fever which presents the same group of remarkable phenomena. The incubation period is from six to fourteen days followed by a gradual onset of symptoms. The temperature gradually rises and the clinical symptoms are much the same as found in typhoid fever (lassitude, malaise, loss of appetite, and headache). After a few days the patient complains of generalized rheumatic pains, accompanied by a slight sore throat.

The fever, which is the outstanding manifestation and which gives the disease its name, is remarkable. It has a peculiar irregular curve consisting of intermittent waves or undulations of a distinctly remittant type lasting from three months, the average time, to two years. The undulations may be separated by apyrexial periods of varying lengths, so that relapses are common.

The spleen and liver are enlarged and sometimes painful after two or three weeks.

Profuse perspiration of a peculiarly disagreeable odor is present. Chills are uncommon.

Neurasthenia and nervous symptoms are common. Delirium is rare.

Acute arthritis of wandering type may be present with enlarged reddened joints which sometimes go on to suppuration. Orchitis and oöphoritis are frequently associated symptoms.

Glandular involvement is rare.

Aside from a relative secondary anemia and leukopenia the laboratory findings are negative. The organism may be grown from the blood and urine with difficulty.

Agglutination by the patient's serum of the specific organism will lead to a positive diagnosis.

Undulant fever is apt to be confused with malaria, acute rheumatism, bacterial endocarditis, typhoid fever, tuberculosis, certain types of leukemia and tularemia.

There is no specific remedy for this fever, although many forms of treatment have been tried. Vaccines, serums from convalescent patients, autogenous serums, and many drugs have been tried without results.

Quinin, however, as used by Ochsner in the treatment of malaria is perhaps the treatment of choice. General measures as suitable for typhoid fever should be instituted.

It is of the utmost economic importance that the etiological factor of undulant fever be determined. The raw-milk industry is on trial until it is determined whether the strain of *Brucella abortus* that infects a large percentage of our milk cows is pathogenic to human beings. It is a strange coincidence that all of the cases that have developed in southern California had been placed on a concentrated raw milk diet for various reasons. This question of pathogenicity will probably be answered in the near future as soon as experimental work now being done at Hooper Research Foundation is completed.

Any case of long-continued fever with sweats, enlarged spleen and leukopenia, in which a proved diagnosis cannot be made, should be suspected as an *abortus* infection. *Brucella* infections among cattle and hogs are exceedingly common, yet those cases of undulant fever in man that cannot be distinguished serologically from the *Brucella* infection in cattle and hogs are so few as to be looked upon as medical curiosities.

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### Tularemia

**R. H. Creel, San Francisco.**—Tularemia is unique in that the causative factor, *Bacterium tularense* was discovered several years before the disease in man was recognized as a clinical entity. McCoy and Chapin of the United States Public Health Service while engaged in the examination of California ground squirrels (incident to anti-plague measures) noted in 1910 a "plague-like disease" in these animals, and in 1911 isolated



from a Tulare County squirrel the organism that causes tularemia.

In 1914 Doctor Wherry reported from Indiana the isolation of *B. tularensis* from cases of conjunctivitis.

Doctor Francis of the Public Health Service in a study of a not uncommon disease in Utah that had been known as "deer-fly fever" established the identity of the latter as tularemia. In 1921 Francis gave the disease the name of tularemia.

Judging from the trend of investigations in recent years, tularemia is not a new disease in the United States, but only a recently discovered one. Up to 1924 only fifteen cases were reported, whereas over four hundred have been reported in the past four years, due probably to a wider dissemination of knowledge of the disease.

Although the infection is known to have existed in California ground squirrels since 1910, human cases within the state were not recognized until 1927—two cases in which the infection was contracted from rabbits of Sacramento County. It is not reasonable to assume that such infrequency represents the true incidence of the disease in California. It seems probable that cases have been erroneously diagnosed.

The disease occurs in four clinical forms: ulceroglandular, oculoglandular, glandular, and typhoidal. The ulceroglandular type is the commoner manifestation and is characterized by a primary papule breaking down into an ulcer, with involvement of regional glands and marked constitutional symptoms—prostration, chills, sweats, weakness, bodily pains, and temperature. The oculoglandular type varies in that conjunctivitis is the first and dominant symptom, accompanied, however, by constitutional disturbance and involvement of regional glands, as in the ulceroglandular form. The glandular type occurs without primary lesion and may be confused with tuberculous or venereal adenopathy. The typhoidal cases present neither primary lesion nor gland involvement.

Added to the clinical symptoms the *B. tularensis* can be found in the blood of a case within the first week, and later on, commencing in the second week, the blood serum will agglutinate *B. tularensis*. Since the organism will not grow on ordinary culture media its identity is accomplished by inoculation of guinea-pig with blood from patient during first week of infection, or tissue from ulcer or glands, and the employment of special culture media. The serum of a patient, however, will agglutinate *B. tularensis* from the second week on, increasing in titer up to eighth week, but persisting thereafter to a lessening extent for months.

The stage of incubation is variable with an average of three to four days and a range from twenty-four hours to nine days.

The onset is sudden with chill, chilly feeling, headache, and prostration. The fever rises abruptly, but remits on the third or fourth day, when symptoms subside. After two or three days the fever again rises and continues for two or three weeks longer, and convalescence is slow.

Weakness and lassitude persist for two or three months. The mortality in a group of five hundred cases was 4 per cent; occasionally the infection may be of a fulminant type.

The disease is commoner in rural districts, but many cases have occurred in cities, among market employees handling rabbits. The disease has been mistakenly diagnosed as influenza, "septic infection," typhoid fever, and sporotrichosis.

In view of the comparative newness of the disease as a recognized clinical entity and the erroneous diagnoses of cases in other localities, it seems not unreasonable to believe that the disease is more common in California than the few cases reported would indicate, particularly as we know that the infection is widespread in California ground squirrels, rats, field mice, and rabbits. It is noteworthy that Doctor Chapin, who with McCoy discovered *B. tularensis*, contracted the disease in the laboratory, but didn't realize its nature until a test of his blood subsequent to recovery showed it to be agglutinative for *B. tularensis*.

Tularemia should be considered when a patient presents any of the syndromes described above plus a history of having been bitten by a tick or fly (especially horsefly) or of having dressed or dissected a wild rabbit.

There is no specific therapy for the disease. Treatment is palliative and symptomatic. There is no advantage in excising or incising glands unless, and after, suppuration has progressed to marked fluctuation. Whenever a case develops in a locality the physician should do what he can to acquaint the community of the danger in handling wild rabbits or squirrels. The control of the disease is essentially a public health problem.

The Farmer has Deserted the Small-Town Doctor, not the Doctor the Small Town.—The article in the August issue of the journal from the National Grange relative to the country doctor situation is interesting, but does not place the blame where it belongs. The farmer is to blame. He has ceased to adequately support the country doctor, and the basic reason for this is ease of transportation.

I started practicing nearly thirty years ago, in the horse-and-buggy age. In those days it ordinarily took two hours to go twelve miles. Nowadays the farmer in that community can drive fifty miles in the same length of time—and he does. In that community today the local doctors get nothing but emergency cases and confinement and other work among people who are too poor to get away. The confinements all go out of town (if able), much of the surgery goes out without even consulting local men. Whereas, the town used to support four or five doctors it is now able to support only two, and they are hard-up. The people are still there, the sickness is still there, but it is on wheels traveling to the big towns.

The farmer has deserted the small-town doctor, not the doctor the small town and the farmer.

It is not specialization except in this respect that the farmer will get into his car and go to a specialist himself without even consulting the home doctor and an awful lot of them do.—Paul R. Howard, *Illinois M. J.*

Editorial Interference.—An Iowa paper recently announced that owing to lack of space several births would be postponed until the next week which clearly is an unwarranted editorial invasion in the field of birth control.—*Ohio Health News.*







designed in its work, to still further serve the public interests, surely no legitimate objection could be made to such appropriation.

As has been stated several times in these columns, in the Los Angeles General Hospital the attending staffs of some one hundred to two hundred members, on the basis of something like ten dollars per hour in time spent at the county hospital, and an average fee of about fifty dollars for each major operation, donate to the county of Los Angeles something like five hundred thousand dollars a year!

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*Why Not Institute County Medical Libraries Through County Hospital Professional Services?* Los Angeles County, for instance, would have no cause for complaint, if, being indebted to the medical profession to the amount of five hundred thousand dollars yearly, it was permitted to cancel that indebtedness, by a payment of ten cents on the dollar, which would be fifty thousand dollars, that amount to go to the support of a county medical library, which would provide means for practitioners of the healing art to give increasingly good service to the public.

Certain legal technicalities would need careful study before such a plan could be put into operation. Perhaps an outright appropriation by boards of supervisors, in total yearly amount to be made on the fee basis just indicated might be possible.

If, however, this could not be done, and it was necessary that the payments for such services could only be made to the physician citizens rendering the same, then perhaps staff organizations or rules could be adopted, so that all such attending staff members would turn over their pay vouchers to the county medical library fund. In such a method it would be necessary to have provisions whereby staff members, in signing an application for staff membership would stipulate that they would abide by this rule of turning their pay vouchers into the library fund, and that any staff member refusing or neglecting to do so would automatically lose his staff membership.

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*Present Library Facilities and Proposed County Libraries.*—San Francisco, with its University of California and Stanford Lane libraries, is in much better present position as regards medical book collections than is Los Angeles with its lone Barlow Medical Library. Arrangements could probably be made whereby the medical libraries already existing would be able to effect a working union with county medical libraries, that would increase the efficiency of all the units concerned.

If the larger counties could have splendid county medical libraries brought into existence, the state statutes permitting all county boards of supervisors to institute such libraries might carry

provisions for loan facilities to the smaller county libraries of other parts of the state. In that way county medical libraries in our larger metropolitan centers could be made of real service to fellow practitioners in all parts of the state.

An annual county medical library appropriation of fifty thousand dollars a year is the equivalent of an endowment of one million dollars! That is the amount of money which would accrue to the Los Angeles County Medical Library on the basis of the fee schedule indicated. From present indications an endowment of such amount from private sources seems virtually out of the question.

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*Who Could Use Such Libraries?*—All licensed practitioners of the healing art would necessarily have the right to use such libraries. The justification for such appropriations would be the promotion of the public health. It stands to reason that every practitioner of the healing art, possessing a license from California, and desiring to improve his knowledge and skill, should have the right to avail himself of the facilities of such libraries as were supported by public funds. However, here as with the law libraries, the trustees should have the right to lay down the rules for each library.

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*Would Such a Donation by Staff Members Be Fair?*—Of course, it may be asked, why should a small number of attending staff members on a county hospital staff do all this for their fellows? On the other hand, why not? What are these attending staff members receiving now, and what will they ever receive in the future, in the way of money emoluments if such moneys for services to indigents in public hospitals were to go into their personal pockets? Probably nothing. So that what they give up is only something that they would not otherwise have received. In addition, the very fact that these staff members donate services to indigents would warrant the belief that they would be equally generous in efforts that would upbuild their profession and which would make for better service to the public.

Such attending staff members might be given special privileges in the way of book withdrawals, if special courtesies were necessary, to compensate them for their generosity in turning over the pay vouchers.

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*Apparent Obstacles Not So Great That This Subject Should Not Be Considered.*—The writer has long thought of this plan and believes, if a careful study of the proposition were made, that out of such study certain tangible good results would come into being. It is here presented so that other members of the profession may consider its merits and demerits. At any rate, even

if it is altogether a dream, thought on the subject of medical libraries for California and adjacent states will do harm to none of us.

#### HEALTH INVENTORIUMS AND PERIODIC HEALTH EXAMINATIONS

*Periodic Health Examinations Not a New Thing.*—Periodic health examinations, from the standpoint of either theory or practice, are nothing new. Before the advent of specialists, family physicians in making visits to sick members of families, were often given an opportunity to pass on the general health of all members of the families. It was this very work of overlooking healthy members of the family, which was very, very often quite efficiently done, that endeared so many general practitioners to their patients and helped give them the beloved name of "family doctor." And even specialists who, in carrying on their work, contact with the family circle, very often give passing attention to other than the one ill member of the family for whom they are called, and advise consultation with the family physician on matters in which the health of other family members is involved. To do this kindly professional service does not belittle the professional capacity of any physician, be he a specialist or a general practitioner. Ours is a profession and guild devoted to service in the healing art, and not one in which a member is permitted to do only so much or a certain limited kind of work per day, as among some of the artisan groups.

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*The Quest for Health Vogue.*—Nowadays, as a consequence of such things as newspaper and periodical exploitation of health matters, and because of the leisure and physical comforts which so many of our lay fellows possess, it has become almost a vogue in social intercourse, to discuss such problems as diet, exercise, hygienic dress, as well as physical ailments and defects proper. Cultist practitioners, and propagandists on food, dress and athletics, as well as other new thoughters, have been fully alert to this very susceptible psychological condition of many lay persons, and have used the same to carry on propaganda work for their various wares. So much at times and in certain places has this been the case, that many regular and ethical practitioners have taken almost a dislike to certain physiotherapeutic and other upbuilding measures because of the undesirable company in which they would find themselves, in availing themselves of certain physical appliances.

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*Two Recent Articles on Periodic Health Examinations.*—In various forms these matters of health conservation and health methods have been receiving increasing attention in recent years in the medical press. Two recent articles bring these

subjects to our attention anew. One is by Franklin H. Martin, M. D., director general of the American College of Surgeons, printed in September *Hospital Progress*, and the other is by Donald B. Armstrong, M. D., and printed in the *Journal A. M. A.* of September 1.

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*Franklin H. Martin's Interesting Suggestions.* Martin's paper contains some expressions of viewpoint which seemingly need further elucidation. He refers to these periodic health examinations as "health inventorioms" which, we take it, is intended to be synonymous with the words "health inventories." He speaks of periodic health examinations as if these were a new movement, separate and distinct from public health or organized health medicine on the one hand, and on the other, from curative medicine.

As a matter of fact, we must acknowledge, as indicated in our opening paragraph, that periodic health examinations have been very much the custom in the past. It is true the general practitioner who checked upon the family member and pronounced him fit and sound did not call such an overview a periodic health examination or a health inventorium, and in many cases he sent no bill for the professional services so rendered. But a goodly portion of such service was rendered just the same.

Martin elaborates his advocacy of modern-day examinations of persons in presumably good health by leading us to almost infer that such examinations, if we omit a baker's dozen or so of clinics, and of the dispensaries of medical schools, can only be properly made in the 1805 standardized or accredited hospitals of the United States which have received the proper grading from the American College of Surgeons.

In his plan the hospital shall provide the examining room free; the laboratory examinations shall be charged for at a nominal rate, and if a charge be made for such service the examining physician shall be responsible for the fee. The patient presents himself to his personal physician with complete printed form blanks which it is suggested the American Medical Association or some such agency shall supply; and on this the examining physician is to carefully and fully record his painstaking findings concerning the patient who wishes to learn whether he is in good health. Where the patient has no personal or family physician a disinterested committee from the county medical association is to give the applicant the name or names of proper physicians who can properly do such a periodic health examination.

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*What Martin Thinks His Plan Would Do.*—This plan is set forth by Martin, "to save the profession from state or socialistic control, or from strongly entrenched interests in the matter of car-



ing for personal health, a simple and practical solution. . . ."

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*Analysis of Martin's Statements.*—In reading Martin's plan, one's first surprise is on the action of the American College of Surgeons in presumably stepping into the domain of internal medicine and of the territory of work which would naturally be allocated to the American College of Physicians.

One's second surprise comes as one reads the nature of the plan as above roughly outlined. Nor is there anything in the paper to explain the author's statements why such health inventories presumably cannot be properly done in the great majority of physicians' offices as at present conducted, but can be well done almost only in the 1805 hospitals that have passed the inspection of the American College of Surgeons.

In another paragraph Martin writes: "There will be an average of not more than sixty practitioners who in the course of a year would occasionally seek the aid of each hospital in examining apparently healthy individuals."

With a population of some 110 million persons in the United States; and who, according to the viewpoint of ultraconservation of health propagandists, all, or in great majority, should undergo these periodic health inventories; and, if one understands Martin correctly, with the accredited hospitals as almost the only places capable of providing proper facilities, we must confess that, for ourselves, we are bewildered when we try to reason out how such a plan will "save the profession from state or socialistic control."

Nor do we understand why a hospital should provide a room free for such examinations, when a shoe merchant would refuse free shoes to a barefooted boy, or a food merchant, meal and vegetables to a hungry applicant. Why also, should those colleagues who maintain laboratories do their work at a "nominal" charge, and why, if the patient does not pay the laboratory fee, should the examining physician be made to pay the same?

Why, in fact, should not such a painstaking examination of a so-called healthy person be paid for from start to finish on a fee basis that would equitably compensate the physician for his time, his knowledge and the use of his equipment?

Why should a presumably healthy person be examined on a reduced or cut-rate basis, when unfortunates and sick people are expected to pay a proper fee?

In a final statement, Martin in appealing to a selected list of hospitals to send him the viewpoints of their staffs on the plan, writes: "This plan involves principles which in the near future are to revolutionize the practice of medicine." On this point we can only say, "it may be," but for ourselves we cannot find in his article the premises from which such a conclusion could be properly drawn. Perhaps our hospital superintendents and staffs and other readers of this journal may be as optimistic as Martin. If time proves such view-

points as Martin presents to be correct, we shall be gratified, and shall be glad to acknowledge our error of thought as here expressed.

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*Armstrong's Article—A Survey from the Life Insurance Standpoint.*—Armstrong's article on "Organized Medicine and Individual Health and Medical Guidance" is of interest not only because of the points brought out therein, but because he is an assistant secretary of the Metropolitan Life Insurance Company. That company sends out some forty-seven million health pamphlets yearly and has referred some four hundred thousand policyholders to their personal physicians for advice. His conclusion seems to be that there should be created in every community, presumably through a county medical unit and its subdivisions, "a local bureau for the dissemination of information for the education of people in sound medical methods and for medical guidance. Such a bureau would be made known to the public through dignified publicity. It would arrange for individuals to see competent physicians. . . . The service must be more than a gesture, more than purely informational—it must be real personal guidance."

The above and similar thoughts and lines of action have been often proposed in medical society meetings and in medical journals, and the leaders in organized medicine have for many years been in complete harmony thereon.

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*Obligations of County Medical Societies in This Important Conservation Work.*—All county medical societies should be fully alert in these important matters.

Each county society should coöperate with other county units, and aim to have its own state and the national associations take up these procedures as definite responsibilities through specific committees and officers.

It is true that hundreds of lay persons desire careful examinations as to their health status. It should be possible to secure these examinations and good advice along health conservation lines, from hosts of able physicians anywhere and everywhere. As in the past, the mass of this work, in our opinion, will be carried on in the workshops of such physicians, namely, in their offices, and in the properly qualified laboratories to which they turn for special technical and laboratory examinations.

If our county medical societies will instil in their members the ambition to practice medicine, both as a science and as an art; if they will impress upon all members the desirability of practicing not only curative, but efficient preventive medicine; and if through the county, state and national organizations they will watch both personal health and public health medical practice, we will need have little to fear but that the major-

ity of our lay fellow citizens will be glad to avail themselves of services which can be best given by members of a well-trained and efficient and well-organized medical profession.

### REPORTS FOR LIFE INSURANCE COMPANIES

That the House of Delegates of the American Medical Association adopted the following resolution on May 17, 1927, indicates rather strongly a reaction against a common abuse:

"Whereas, There is a growing tendency on the part of some insurance and indemnity companies, as well as industrial concerns, to impose on physicians by requesting or expecting that more or less complete physical examinations, including written reports of same, or that a written expert medical opinion concerning patients shall be made for nominal fees or perhaps no fees at all, and that there is increasing tendency on the part of such organizations or concerns to shift responsibility by making erroneous claims that the services are in the interest of the patient or client from whom the physician cannot justly claim compensation; therefore be it

"Resolved, That it is the sense of the American Medical Association as represented by this House, that the members of the American Medical Association are under no moral or legal obligations to furnish professional services or expert professional opinion concerning any patient, or reports concerning professional services rendered any patient, to insurance or indemnity companies, to industrial concerns or their agents, or for the benefit of any third party, unless paid the customary fees charged by the medical men of that community for similar services rendered to private patients."

Few physicians have escaped receiving a courteous note from some life insurance company to the effect that "in the month of such a year you treated John Doe. Will you send us a report of your findings and treatment?" The question of responsibility to patient and of inviolability of confidence in these cases is often a nice one. Is the physician's report for his patient's interest or the insurance company's? The question whether this clinical work of searching back records and filling out a questionnaire should be a gratuitous service or not has evidently received frequent consideration by members of the Association, and has been explicitly answered in the adoption of the above resolution.

### MEDICAL TESTIMONY IN CRIMINAL CASES

*Factors in the Making of Reputations.*—Whatever, in the eyes of the laity, affects the reputation of the regular medical profession should be of interest to those who believe in organized medicine. For we organize, to maintain as fully as possible, the highest standards of medical practice and conduct. If we would attain to our fullest

efficiency with our fellow citizens, it is not only important that our general practice and conduct should measure up to proper standards, but that we should avoid unimportant issues and dilemmas, in which our participation is apt to be misjudged and bring reproach upon us, either as individuals or as a profession.

Or, to put it otherwise, if we are wise we will avoid those things in which so distorted a presentation of our professional participation may be made as to create in the minds of thousands of lay fellow citizens a distrust of our scientific knowledge or of our honesty of motives.

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*A Recent Medico-Legal Case.*—These and associated thoughts must have come to many of us, when in a recent homicide case in one of the courts of Los Angeles a battle of medical experts was placed upon the stage.

There is no desire here to go into the merits of that or any other of the recent cases that have had somewhat similar stage settings. Nor is there any wish to deny to any member of the profession his right to fight valiantly for scientific truth, as he sees it. It is justifiable to hold, however, that those members who engage in these medico-legal battles in criminal and similar cases should be very certain as to the whys and wherefores that make them parties to these controversial court scenes. For the lurid portrayal of their viewpoints in the daily newspapers is oftentimes anything but edifying, and certainly far removed from that atmosphere of decent respect, in which all physicians who believe in the ethical practice of the healing art desire the public to hold concerning the medical profession and its members.

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*Where Rests the Blame for Newspaper Notoriety in Medico-Legal Cases?*—It is quite true that the newspapers are largely to blame for much of this unfortunate state of affairs. When a human life is at stake before the courts it is quite as much in order for a physician to give just and honest battle in defense of that human life as it is for the same or a colleague physician to strive to save the life of a patient in private or hospital practice. Nevertheless, as individuals of mature years, we should hesitate and give careful thought before we consent to acquiesce in the requests of legal defenders or prosecutors, who seek medical opinion that largely or entirely will be in favor of their respective positions, or who will so word their questions as to give false impressions to court or jury.

It must be remembered that one thousand members of the profession, day in and day out, year after year, can give most conscientious and efficient and at times most altruistic service to indigent lay fellows, and receive for services so ren-



dered practically no words of praise or laudatory comment in the lay press.

But one to a half-dozen members of the profession, who, aided and abetted by attorneys, permit themselves to become parties to one of these court controversies, such as a spectacular murder case, will receive in a few days, not lines or inches, but whole columns of publicity. The accentuation of widely conflicting medical opinion, according as the presumable expert is on the side of the defense or prosecution, does not make for kindly opinion of our profession by lay citizens. If this lack of respect largely vented itself on the medical participants in these spectacles, it would not be so bad, and we may add, that in itself soon would bring to a stop much of such expert medico-legal controversies. Unfortunately, however, the loss of respect by the laity is vented upon the profession as a profession; and in the eyes of many laymen the opinion takes root that so-called regular and ethical practitioners have after all not so wide a breach between themselves and the cultist practitioners whom they decry because of low standards of professional outlook.

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*How Can the Unfortunate Phases of Medico-Legal Controversies Be Minimized?*—It is granted that the whole subject is a big and broad one, and that many vital and important elements enter therein.

We have no easy solution to offer for the difficulties that are encountered in this form of legal procedure. We medical men are far distant from our lawmakers and from those who devise our political and civil codes; and in one sense, because of our lack of broad knowledge of these matters, we are quite content that our legal brethren should bear the major responsibility for the laws that are placed in our statute books.

In matters of so-called expert medical testimony we are, however, as a medical profession, very much interested. We regret that in our American courts our legal brethren should have permitted a system to have grown up, as regards expert testimony, that is so far removed from the English system. In the English system, from a panel of carefully selected medical men, the court seeks knowledge as to facts and expert opinions, and in that country medical men are not lured at so many hundred dollars per day, to give expression to partisan viewpoints in favor of the side supplying the retaining fee.

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*The California Legislature Convenes in January Next.*—In the last California legislature there were many amendments to the criminal and other codes. At the session of the legislature, which will convene in January next, these and related matters will continue to receive special attention.

Would it not be a very proper thing for component county medical societies whose members are interested in these matters to appoint committees to confer with committees from their local bar associations, in the hope of bringing about

some improvements in the present deplorable methods? Working through the local and state medical and bar associations it should be possible to bring about a betterment in these medico-legal and expert medical testimony procedures that would be of real benefit, not only to the medical and legal professions, but to the public at large.

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Specialism Running Wild—An Attendant for Each and Every Nerve.—An apt valuation seldom dies. "Truth crushed to earth will rise again," so does the epitomization of an unchanging condition endure, provided in the first place "Father was right."

A correspondent has asked that the journal shall reprint from *Judge* magazine this clipping that appeared later in the *Journal of the Medical Society of New Jersey*. The article is a modern tribute to the skill of court jesters of yesteryear. "If the shoe fits, let the profession put it on."

Headed "Specialists, Specialists, but Not a Doctor in Sight," the article, signed by Don Herold, reads in part:

"Who remembers when we used to call a doctor in case of sickness? Nowadays we have to be mighty delicate about that. We might get an inch over the boundary line, and call a doctor for the wrong organ. Lots of people just die now rather than decide which specialist to summon.

"In the big cities at any rate there is nobody to come and see us when we are 'just sick.' We have to know exactly where we are sick and what ails us.

"Half the time we are sick in between organs, so there is nobody in town to cover the situation. The only thing to do is to wait until the disease shifts to some part of our anatomy covered by a specialist of whom we happen to know.

"What is needed is a medical brokerage service. When theaters became so numerous in New York, for example, that it was impossible to run around to all of them to decide what show to see, ticket agencies naturally sprung up where you could stand in front of a counter and get a seat for any show in town. We need McBrides and Tysons for the medical profession. We need medical brokers who will send us where we belong.

"Once there used to be a few accepted kinds of specialists—ear, nose and throat men, for instance. Why, gosh, a man who covers the ear, nose and throat today is almost a general practitioner. There are now twenty-seven kinds of nose doctors alone. A man can now devote his whole life to the outside of the inside ear.

"Back in Bloomfield the same doctor used to bring us and bury us. Here in New York the obstetrician gives us a slap and a promise and turns us over to the pediatrician. There is a new doctor down the line every fifteen or twenty minutes from the cradle to the grave. People are not only chopped up into sections geographically but chronologically.

"A liver man will not even listen to young lungs. A heart man does not care how you are—all he knows about is hearts. And practically none of the new-fashioned doctors care how you feel.

"Let us pray that this intense specialization does not spread to other fields. It may be well and good to peddle a stomachache all over Manhattan before finding a buyer, but may we be spared from dragging a motor car all over the city to find 'the right man.'

"'Oh, no, we don't touch that. You will have to take your car to a rear axle specialist. We concentrate on those teeny-weeny little wires in your spark plugs. And for that hoarseness in your klaxon you should see Croupem, the horn man.'"—*Illinois M. J.*

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Hints on Beriberi Prevention.—Beriberi develops if other vitamin-containing food is not eaten with machine-polished rice.

Beriberi is prevented if those who eat machine-polished rice also eat maize, chicharo, habichuelas, sitao, patani, batao, payap, balatong, peanuts, etc.—*Philippine Health Service.*



# MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

## Urology

**Prostatic Adenocarcinoma.**—A very interesting discussion on the treatment of prostatic adenocarcinoma was recently presented by Chute.<sup>1</sup> It emphasizes the difference of opinion of urologists in general as to the best method of treatment of these unfortunate and desperate cases. There are distinctly two schools, in the opinion of one of which treatment is always purely palliative and never curative, and of the other that treatment should be radical and attempts made to cure whenever possible.

Of all cancers, prostatic cancer is particularly distressing. In the first place it is relatively frequent in occurrence, for probably four men in every hundred who reach the age of sixty have a cancer of the prostate, and it has the almost certain mortality of one hundred per cent. Statistics so far have not shown much encouragement in the way of treatment and it is on account of this prolonged discouragement that many urologists advocate purely palliative measures in the treatment of the condition.

The most marked characteristic of adenocarcinoma of the prostate is its insidious nature, often being very advanced before any symptoms of any kind are manifested. It is very slow-growing, metastasizes, as a rule, late and then generally to the long bones or vertebræ, and very seldom undergoes necrosis. The difficulties of the problem are increased by the fact that its only means of diagnosis is by rectal palpation, the characteristic finding in a case of carcinoma being stony hard induration in that portion of the prostate where it exists; but confusion arises because inflammatory conditions cause areas of induration that are sometimes indistinguishable, and also because many adenocarcinomata of the prostate have a distinctly soft or elastic consistency. Those who are in the habit of performing perineal prostatectomy are well aware of the number of surprises that they meet in finding a definite carcinoma of the prostate in patients in whom, previous to operation, the lesion had been regarded, on the evidence of palpatory findings, as purely benign. This alone, if there is any treatment to be adopted in these cases in the way of cure, emphasizes the advantages of the perineal route over the suprapubic in the treatment of prostatism, as a very large percentage of cases of carcinoma of the prostate are associated with benign hyperplasia. This is because the disease in the vast majority of cases starts in the posterior lobe and is confined to this area by Denonvillier's fascia, spreading toward the seminal vesicles and bladder neck. The urethra or bladder mucosa are not usually invaded so that there would be no evidence of the disease

cystoscopically. Even though the disease is insidious, slow-growing and frequently symptomless, once it becomes so advanced as to produce symptoms, these then become most distressing, consisting in disturbances of urination and pain. The pain in these cases is of referred character due to pressure on the nerves and is so constant and persistent as to render the life of these unfortunates truly miserable. That school which regards all cases as incurable resorts to simple suprapubic cystotomy as a palliative means of relief, relying on deep x-ray therapy or local radium treatments as a means of checking the pain, the cystotomy being performed to relieve the urinary obstruction.

It is interesting to note that the school which advocates this palliative course almost without exception treats benign prostatic hyperplasia by the suprapubic route, whereas those who are familiar with the perineum because of their experience with perineal prostatectomy for benign hyperplasia, advocate a more radical method of attack in these otherwise hopeless cases. Young has long advocated a radical operation, based on the principle of surgical attack against cancer anywhere, in the treatment of prostatic adenocarcinoma. Unfortunately the radical operation of Young is only possible in those cases diagnosed early, before it has spread beyond the area of the prostate, and of course before metastases to other parts of the body have occurred. Because of its nature, such early diagnoses are very rare, although they no doubt would be made oftener if rectal examinations were more universally adopted in the general examination of patients. Young himself has only performed twenty-four radical operations.

In those cases where the disease has spread beyond the possibility of radical removal, it can still be attacked by way of the perineum and usually according to two groups of conditions.

In one group where rectal examination indicates a spread into the seminal vesicles and beyond the probability of radical removal and in which there is no obstruction to urination, radium implantation, and the use of radium by urethral applicators and rectal applicators has been advocated.

In the other group in which, in addition to the spread beyond the probability of radical removal, there is an associated benign hyperplasia producing an obstruction, or where the cancer itself has so spread as to obstruct the urinary outlet, conservative perineal prostatectomy with enucleation of the obstructing portion and as much else of the cancer as can be removed, and then the implantation directly of radium tubes into that involved area not removed, is advocated. It is



often surprising how much actual relief of suffering and prolongation of life this latter procedure, even in the most desperate cases, can produce. There are authentic cases that have survived eleven or twelve years with complete control of urination and without pain or other distressing symptoms.

But, in spite of radium and deep x-ray, the treatment of prostatic cancer is most unsatisfactory, and it is for this very reason that effort should be made to make as early diagnosis as possible in order to increase the percentage of cases in which a radical complete removal can be performed. The occasional surprising benefit, prolongation of life and marked relief that follows the conservative perineal operation with implantation of radium justifies its more general application even in the face of the many failures. These failures do not leave the patient in a more distressing and unfortunate condition than does a suprapubic drain.

In the discussion above referred to, Chute takes the point of view of surgical treatment when possible and his colleague, John L. Cunningham, advocates the opposite course of treatment. In a recent very complete analysis of the carcinoma cases at the Mayo Clinic, Bumpus also came out definitely in support of the hopelessness of these cases, advocating that in the majority a simple cystotomy drainage gave them as much relief as any procedure.

But this brings us back to the point above presented, namely that those who advocate simple suprapubic drainage are the ones who perform suprapubic prostatectomy, whereas those who believe they can give more relief to these unfortunates by perineal surgery and cure a certain number, which will increase with earlier diagnosis, are the ones who are performing perineal prostatectomy. Perineal surgery for carcinoma is more difficult than for benign hyperplasia. Those who have no success with this route in benign cases and therefore elect the suprapubic route cannot expect their results in the more difficult condition of cancer to be any better. Suprapubically the attack on cancer is helpless except to remove an associated obstructing enlargement or give bladder drainage.

FRANK HINMAN, San Francisco.

#### REFERENCE

1. Arthur L. Chute: Bost. M. & S. J., 197: 1207-1213, 1927.

#### Syphilology

**Viability of *Spirochaeta Pallida*.**—Some surprises have been revealed by studies on the viability of *Spirochaeta pallida* outside the body. It is commonly supposed that when an exudate or other matter containing spirochetes gets cold it is no longer infectious—consequently the possibility of infection from toilets, douche-tips, and so on, is not generally conceded.

Motility is not a reliable criterion of life, for biological methods have shown spirochetes to be

still virulent after motility has ceased. However, motility has been observed to persist in cover-glass preparations fifty days (Beer), four weeks (Arning and Klein), twelve days (Mierowsky), four days (Hartmann), two days (Mucha and Landsteiner), 24-48 hours (E. Hoffmann), and 5-6 hours (Eitner). Zinsser and Hopkins kept *Spirochaeta pallida* alive for 11½ hours in a moist towel at room temperature in daylight. Reasoner mixed serum expressed from testes of syphilitic rabbits with distilled water and tap water and noted motility after four hours. Rubin and Szentkysaly noted motility in a hanging drop for five days. Spirochetes have been observed in capillary tubes and reported still motile after several weeks by numerous authors. Reasoner observed motile spirochetes after 56 hours in testes excised from syphilitic rabbits; Haythorn and Lacy put similar testes in an ice-box and found spirochetes contained therein to regain motility at the end of 5-8 days. They successfully inoculated a rabbit with material taken from a syphilitic stillbirth 26 hours after delivery; M. Koch succeeded in a similar experiment with material from a congenital-syphilitic child three days after death. Truffi reported motile spirochetes taken from the primary lesion of a corpse 52 hours after death. Werther repeatedly demonstrated living spirochetes in livers of syphilitic fetuses which had been kept in an ice-box for eleven days. The danger of infections from necropsies during the first twenty-four hours is very great. E. Hoffmann has found twenty such infections reported in the literature and one is known to me. Several of these have been unusually malignant. Inoculation experiments have been successful with chancres extirpated 96 hours from rabbits (Zurhelle and Stempel). At ice-box temperature the life of *Spirochaeta pallida* is prolonged for months. Krantz exposed spirochetes at -20° C. for one hour and saw them regain motility after two days. Kissmeyer obtained successful subcultures from cultures which had been kept at -16° for three months. Oelze sprayed cover-glass preparations and capillary tubes containing *Spirochaeta pallida* with ethylchlorid till frosted, then noted resumption of motility on thawing. Arnheim reported survival of spirochetes held at 60° C. for five minutes, Zethnow confirmed this but reported they were killed at 60° C. for 20 minutes, but not at 50° C. for 20 minutes.

In the light of these observations one must acknowledge that accidental infections from douche-tips, toilet seats, towels, and so on, are not beyond the realm of possibility.

MERRILL HOLLINGSWORTH, Los Angeles.

#### Immunology

**Rate of Development of Pneumococcus Immunity.**—Inasmuch as pneumonia is a self-limiting disease usually ending by crisis or lysis between the seventh and tenth days, three to five days are frequently afforded in which an at-

tempt may be made to produce active immunity. Barach<sup>1</sup> of the department of medicine of Columbia University, New York City, has recently reported experimental evidence that an effective immunization is possible within this short period of time.

Barach injected mice intraperitoneally with special vaccines prepared from early, highly virulent cultures of pneumococci, and found the onset of definite immunity on the third day after the injection. In some mice the immunity was sufficient by the third day to protect against 10,000 to 100,000 M. L. D. of the infectious agent. The immunity increased markedly to the fifth day and remained approximately stationary till the seventh day. Barach found that this early antipneumococcus immunity is specific for the pneumococcus type used. Whether or not patients with lobar pneumonia will react in the same way was not determined by him.

W. H. MANWARING, Stanford University.

#### REFERENCE

1. Barach, A. L.: Proc. Soc. Exper. Biol. and Med., 1928, 25, 558.

### Dermatology

**Orbicular Eczema.**—Regional types of various dermatoses are often, and justly so, considered as separate clinical problems because of the special clinical factors peculiar to each anatomic locality.

Orbicular eczema is chosen here as a subject of clinical discussion because of its comparative frequency and its alleged intractability.

Not uncommonly patients with orbicular eczema consult the ophthalmologist first, being under the impression that their condition might be caused by some ocular abnormality. In fact, some of these eczemas do develop while the patient is under the ophthalmologist's care for some ocular disorder.

Orbicular eczemas may involve one or both of the eyelids or supra- and infra-orbicular regions. Morphologically they may be very acute with a good deal of inflammatory edema and exudation or very chronic with dry, scaly infiltrated patches.

The condition is very often associated with a distressing itching and discomfort.

The common reason for therapeutic failure in such cases is that they are routinely treated as if all were of the same type.

There are at least four different types of orbicular eczemas, each of which requires individual treatment and handling.

The type of the greatest interest to ophthalmologists is the eczema developing secondarily to some ocular disturbance, associated with profuse conjunctival discharge. These eczemas are usually

of a weepy exudative character and are often associated with edema and great irritability of the skin. Not uncommonly they are caused or aggravated by an idiosyncrasy of the skin to ophthalmologic remedies such as dionin, silver nitrate, etc.

These cases require above all protective and soothing applications such as Burrow's solution and soothing creams.

In some cases eczema is an extension of blepharitis and is merely an expression of the general exudative diathesis and scrofula. In these cases systemic tonic treatment is the main therapeutic consideration.

Both of these varieties are often associated with pyogenic infection, which fact is readily disclosed by the development of well-defined circinate borders, bulky heavy crusts, and a tendency to rapid extension. These cases are benefited by mild antiseptic ointments and lotions such as 1 to 2 per cent of mercury ammoniate and lotio nigra.

Still another type of orbicular eczema is the seborrheic. This type is characterized by a selective localization of the lesions on the eyebrows, with a tendency to descend and invade the nasolabial folds. The lesions themselves are characterized by heavy yellowish crusts and only mild itching. These cases respond well to mild antiseptic ointments containing salicylic acid, resorcin and sulphur. Dietetic restriction of fat, carbohydrates and sugars is essential.

The most resistant and possibly the most important clinically is the type represented by dry, infiltrated, extremely itchy patches which may be located in any part of the orbicular region. These cases are as a rule of systemic, dietetic or metabolic origin, and call for careful study and regulation of the diet.

Therapeutically it is important to remember that, due to a peculiar tender texture of the skin in the orbicular region, irritating and strong local applications are decidedly contraindicated.

It is also of practical interest to know that, due to the close proximity of the eyes, various modalities of the ultra-violet light, so beneficial in superficial forms of eczemas, are not suitable for therapeutic purposes in orbicular eczemas.

Our main resource in these cases is x-ray radiation which, if used judiciously in small fractional doses such as one-sixth or one-eighth of a skin unit with a spark gap of 4 to 5 inches, is perfectly safe and admirably effective. The most serviceable ointment is the one containing anesthesin 2 to 4 per cent and naphthalan (Steiwe) 4 to 10 per cent in lanolin or plain Lassar paste.

In conclusion I wish to emphasize the utmost importance of individualization of treatment of the various types of orbicular eczemas and the correct interpretation of the skin lesions.

MOSES SCHOLTZ, Los Angeles.



# STATE MEDICAL ASSOCIATIONS

## CALIFORNIA MEDICAL ASSOCIATION

WILLIAM H. KIGER.....President  
MORTON R. GIBBONS.....President-Elect  
EDWARD M. PALLETTE.....Vice-President  
EMMA W. POPE.....Secretary

### OFFICIAL NOTICE

Official notice is herewith given of certain proposed amendments to the Constitution and By-Laws of the California Medical Association which will come before the House of Delegates of that association at the 1929 annual session at Hotel Coronado.

These various proposed amendments to the present Constitution and By-Laws may be found in CALIFORNIA AND WESTERN MEDICINE in the issue of August, 1927, pages 244 to 258, and in the August, 1928 issue of CALIFORNIA AND WESTERN MEDICINE, pages 113 to 138.

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#### Arrangements Committee 1929 Annual Session.—

Dr. Mott Arnold, chairman of the Committee of Arrangements for the 1929 session of the California Medical Association, has appointed the following subcommittees to handle the local needs of the convention.

Finance—Chairman, William H. Geistweit, Jr.; Edwin H. Crabtree, Chester O. Tanner.

Publicity—Chairman, Clarence E. Rees; Rawson J. Pickard, George B. Worthington.

Invited Guests—Chairman, Lyell C. Kinney; James F. Churchill, Clarence E. Rees, Mott H. Arnold, James W. Sherrill.

Commercial Exhibit—John C. Yates.

Scientific Exhibit—Chairman, Harold A. Thompson; Hervey K. Graham, Willard H. Newman.

Entertainment—Chairman, Andrew B. Wessels; E. P. Chartres-Martin, Thomas O. Burger.

Hotel Reservations—Chairman, Frank Carter; Charles W. Lane, Edward A. Blondin.

Meeting Places—Chairman, Will H. Potter; Andrew J. Thornton, Louis J. Strahlmann.

Entertainment of Visiting Ladies—Chairman, Mrs. Homer C. Oatman.

Information and Registration—Chairman, David C. Higbee; James D. Bobbitt, Donald K. Woods.

Women Physicians—Chairman, Marjorie Potter; Olive B. Cordua, Martha Welpton.

Golf—Chairman, Edgar C. Lee; Samuel A. Durr, C. Ray Lounsberry.

Medical Reserve—Chairman, John C. Dement; Alfred E. Banks.

Naval Activities—Chairman, Captain R. Spear; Fraser MacPherson, Charles William Brown.

Transportation—Chairman, James W. McColl; C. Pennell Baxter, S. J. McClendon.

### COMPONENT COUNTY SOCIETIES

#### ALAMEDA COUNTY

The first meeting of the Alameda County Medical Association after the vacation period was held in the Ethel Moore Memorial Building in Oakland, on August 20. Doctor Lohse was in the chair. The program of the evening was prepared and presented by the staff of the Baby Hospital. Dr. Edith Meyers read the first paper, which was the presentation of a case report of an infant suffering from a glioma arising in the region of the fourth ventricle. The case was discussed in considerable detail by Dr. Frederick

Reichert, who demonstrated diagnostic measures and showed x-ray films. The second paper of the evening was a discussion of upper respiratory tract infections in gastro-intestinal upsets by Clifford Sweet. Doctor Sweet pointed out that the usual gastro-intestinal upsets were not due to pathology in this tract, but were the result of toxins produced elsewhere. These toxins were, in most instances, infections in the upper respiratory tract, such as cryptic tonsils, infected adenoids, middle-ear infections, etc. Doctor Sweet said the etiology in the cases in question should be first sought in the respiratory tract and that food and the intestinal tract should be looked to last as the cause of the trouble. The third paper of the evening was by Dr. Hobart Rogers on rheumatic diseases in children. Doctor Rogers spoke briefly upon the etiology of rheumatic fever, discussing the part played by such predisposing factors as crowding, dampness, cold, fatigue, etc., together with a brief discussion of the streptococcus involved, and the use of specific sera as prepared by immunization of the horse or the bovine. He also discussed the use of soluble antigens in its treatment. Doctor Rogers exhibited two cases in which cardiac involvement was a prominent feature. The fourth paper of the evening was on "Some Bone Conditions in Children" by Dr. F. W. Holcomb. Doctor Holcomb limited his discussion to fractures in and about the elbow joint, pointing out the advantages and shortcomings of the Jones method of handling these conditions.

Doctor Rothganger, chairman of the building committee, reported on a plan to provide a new building to house the assembly room and the library of the association.

GERTRUDE MOORE, *Secretary*.

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#### CONTRA COSTA COUNTY

The first of the fall meetings of the Contra Costa County Medical Society was held in Richmond on the evening of the 15th of September, Dr. St. John Hely, president, presiding.

Dr. Dudley Smith of San Francisco read a very instructive paper on "Cancer of the Rectum," pointing out the greater percentage of advanced cancer because of failure of early diagnosis, which in many cases could be disclosed by digital examination and inspection of the rectum by proctoscopy. Interesting lantern slides were shown depicting the various stages of the operation, etc.

Miss Harris of the Pacific Division of the American Red Cross spoke before the society explaining the service of visiting nursing, which they hope to institute in Richmond territory shortly.

Dr. L. H. Fraser was readmitted to the society on transfer from the Alameda County Medical Association.

A light luncheon was enjoyed at Martin's Grill following the meeting.

Those present were: Doctors J. W. Bumgarner, P. C. Campbell, L. St. John Hely, L. H. Fraser, Rosa Powell, Mrs. Redman, R. N., Richmond; S. N. Weil, Selby; F. L. Horne, J. M. McCullough, W. A. Rowell, Crockett; I. O. Church, H. W. Fetter, Martinez.

S. N. WEIL, *Secretary*.

#### ORANGE COUNTY

The regular meeting of the Orange County Medical Association was held at the Orange County General Hospital, Tuesday evening, September 4, at 8 p. m.

The paper of the evening was presented by Dr. Merrill W. Hollingsworth of Santa Ana. His subject



was, "The History of Syphilis." A large collection of rare old volumes obtained in this country and in Europe was shown. Pictures of other original writings and of patients were projected on the screen.

Dr. J. M. Burlew of Santa Ana reported the case of a patient coming to him with an enlarged uterus with no outlet, evidently due to obliteration of cervical canal after amputation of the cervix. Doctor Wehrly reported a case of carcinoma of gastro-intestinal tract.

After adjournment of the meeting a fine lunch was served.

F. HAROLD GOBAR, *Secretary*.

#### SAN DIEGO COUNTY

All the medical activities, including the county society and the staffs of the various hospitals, are resumed with the coming of September.

The opening meeting of the medical society after the summer recess will be addressed by Dr. Samuel Ayres of Los Angeles, who will speak upon "Some Phases of Dermatology." It will be preceded by a dinner at the San Diego Athletic Club.

Dr. Mott Arnold, chairman of the committee on arrangements for the next state meeting which will be held in Coronado, has completed the organization of his working machine and announces the following committees:

Finance—William H. Geistweit, Jr., chairman; Edwin H. Crabtree, Chester O. Tanner.

Publicity—Clarence E. Rees, chairman; Rawson J. Pickard, George B. Worthington.

Invited Guests—Lyell C. Kinney, chairman; James F. Churchill, Clarence E. Rees, Mott H. Arnold, James W. Sherrill.

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Medical Reserve—John C. Dement, chairman; Alfred E. Banks.

Naval Activities—Captain R. Spear, chairman; Fraser MacPherson, Charles William Brown.

Transportation—James W. McColl, chairman; C. Pennel Baxter, S. J. McClendon.

The well-known *esprit de corps* of the San Diego society assures a smooth-working entertainment machinery, and all who visit the 1929 meeting will receive a warm welcome and entertainment to look back upon with pleasant memory. Make your hotel reservations early and plan to bring the family. ROBERT POLLOCK.

#### SAN FRANCISCO COUNTY

##### Tribute to Dr. Frank Benton Carpenter

At the meeting of the board of directors of the San Francisco County Medical Society on September 11, 1928, the following tribute to Dr. Frank Benton Carpenter was read and resolutions were passed that copies be sent to Mrs. Carpenter and to CALIFORNIA AND WESTERN MEDICINE, and that the board of directors extend to Mrs. Carpenter their deepest sympathy for the death of her late husband, Dr. Frank Benton Carpenter.

With the death of Doctor Carpenter there passed from among us one whose friendship was a priceless gift.

"A man that fortune's buffets and rewards hast ta'en with equal thanks" he ever met his fellows with



Dr. Frank Benton Carpenter  
1858-1928

a warm and happy greeting which then lightened their burdens and now is a precious memory.

Doctor Carpenter was born December 29, 1858, in Prairie du Chien, Wisconsin, and died July 16, 1928, in Logan, Utah. His father, Charles Carpenter, died when his son was but eight years old. His mother, Malinda Alexander, age eighty-four, and his stepfather, W. T. Alexander, age eighty-six, are still living in Campbell, California.

Doctor Carpenter married Nettie Pepper of Vermont in 1883, and graduated from the College of Physicians and Surgeons of Columbia University the same year. He came to San Francisco, and after a few years of successful general practice made surgery his specialty.

He gave freely of his time and energy to both his county and state societies, and was a familiar and welcome figure at almost every meeting for many years. In 1902 he was elected president of the San Francisco County Medical Society and in the same year became president of the California State Medical Association.

Until shortly before his death he was a member of the board of directors of the San Francisco Polyclinic and chief of the department of gynecology. He was visiting gynecologist to the San Francisco Hospital for many years. He was a Fellow of the American Medical Association and of the American College of Surgeons, and a member of the California Academy of Medicine. He served a term on the State Board of Medical Examiners. He was a member of the Commonwealth and Union League Clubs and took an active interest in both.

Doctor Carpenter's outstanding characteristic was a happy, uniform and generous disposition that made and kept for him many firm and lasting friends.

His loving care of his father and mother was typical of the man. He was an enthusiastic hunter and fisherman, but above all he loved beautiful scenery, and even in his last years no effort was too great, no trip too arduous to prevent his reaching some spot whose grandeur he wished to enjoy. And at the end death



came to him when he was returning from a visit to beautiful Zion Park of Utah.

With the passing of Doctor Carpenter his patients have lost a faithful, skilled and beloved adviser; his father and mother a dutiful and honored son; his wife a loyal, thoughtful and loving companion of forty-five years, and the San Francisco County Medical Society a member whose high character, devotion to the ideals of his profession and sunny, steadfast disposition endeared him to all.

T. HENSHAW KELLY, *Secretary*.



#### SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held Thursday evening at 8:30 p. m., September 6, in the hall of the Medico-Dental Club, 242 North Sutter Street.

The meeting was called to order at 8:30 p. m., Dr. R. T. McGurk presiding. Twenty-one members were in attendance. Doctors E. L. Blackmun, J. F. Blinn, Fred J. Conzelmann, J. T. Davison, J. F. Doughty, F. P. Gallegos, Minerva Goodman, R. R. Hammond, Samuel Hanson, J. P. Hull, Bernhard V. Looser, Grace McCoskey, R. T. McGurk, F. G. Maggs, F. J. O'Donnell, B. J. Powell, Dewey R. Powell, George H. Sanderson, Margaret Smyth, C. V. Thompson, L. E. Tretheway, and Philip Arnot of San Francisco, guest and speaker of the evening.

The minutes of the previous meeting were read and approved.

The transfer of Dr. Bernhard V. Looser from Colusa County Medical Society was read.

Moved by the secretary, seconded by Doctor Gallegos, that Doctor Looser be accepted as a member of this society. The motion carried.

The chairman introduced Dr. Philip Arnot, who spoke on induction of labor by Voorhees bag.

He gave an analysis of eighty-five patients in whom he had used the bag. The doctor gave an excellent account of the technique of using the bag which he stated could be used at home as well as in hospitals. An assistant is needed to put bag in place. When bag is in place it is filled with sterile water or salt solution. He used the bag in one out of eight patients. In most patients a pathological condition existed, such as hypertension or albuminuria. Forty-seven were primipara and thirty-eight multipara. The oldest, age thirty-eight, with a blood pressure of 220, and the youngest, age sixteen years, with eclampsia.

The indications for use of bags are: (1) Hypertension and albuminuria, blood pressure 140 to 170, with excessive albumin in urine present six weeks before term and not improving or getting worse with treatment. Thirty patients in Arnot's series had this condition. (2) False or indefinite labor pains when patient is in labor for twenty-four hours without dilation of cervix or large child. Eight patients had this condition, coupled with ruptured membranes, which is an additional reason for use of bag. (3) Convenience for patients, when uncomfortable and out of breath. (4) Premature rupture of membranes without pain. Give castor oil and quinin; wait not longer than twenty-four to thirty-six hours, then use bag. It is safest for mother and baby to use bag after twenty-four hours. (5) Placenta previa. (6) Premature separation of placenta and dead fetus.

Failures: Three cases. One case of hypertension albuminuria and fever. Two cases physician was not present and bag came out in eight hours. Make rectal examination to see whether cord is down and cervix dilated. Twenty-five patients needed stimulation with pituitrin and massage. In four cases only massage was used. The secret of success in use of bag is personal supervision. As a rule labor commences in two hours and forty-five minutes after bag has been placed in uterus. In many cases labor starts within an hour, and in primipara occupies eight hours and in multipara five hours.

Usually labor is completed in three hours less time with bag. Labors are shorter and easier with bag.

Instrumental delivery: Fourteen cases out of eighty-five. Causes for use of instruments, large child and unnatural presentation.

Complication: Prolapse of cord, one case. Prolapsed cord and ruptured membranes, two cases. Rupture the membrane between pains and let fluid out slowly and cord will not come down.

Total deaths in eighty-five cases, eighteen or 21 per cent. Eight were macerated; one case premature separation of placenta; two babies died of cerebral hemorrhage; two other babies died prematurely. Two babies died due to prolapsed cord.

Maternal death rate was high, but all these cases in which bag was used had a pathological condition which was the indication for the use of the bag.

Objection to use of bag: (1) Dislodges head. (2) May rupture membranes and favor infection. (3) Frequency of prolapsed cord. (4) Use of bags requires time and presence of physician. Physicians usually do not wish to give the time. If you do not wish to give the time do not use the bag. Pains must be continued after bag is out. Other methods for induction of labor: (1) Castor oil and quinin successful in 60 per cent of cases. (2) Cervical packs favors infection of mother.

Bougis: Danger of perforating uterus. Pituitrin starts labor and may be used with the bag to keep the pain coming. It is not always a safe method; especially in hypertension cases. It is safer to give pituitrin when cervix is already dilated. Bags are used to induce labor, and in 96.5 per cent of the cases labor is shortened.

An interesting discussion followed in which Doctors McGurk, Gallegos, Maggs, Hanson, Sanderson, Tretheway, and Hammond participated.

In behalf of the society the chair conveyed appreciation and thanks to the speaker of the evening.

The chair declared the meeting adjourned at 10 p. m.

FRED J. CONZELMANN, *Secretary*.



#### SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held at the St. Francis Hospital Monday evening, September 10, at 8:30 o'clock, with President Sansum in the chair.

There were present thirty members of the society.

The minutes of the June meeting were read and approved.

Unanimous ballot for membership was cast by the society for Dr. P. A. Gray, a new member, and the transfer to this society of Dr. F. E. Blaisdell from the Ventura County Society and Dr. Robert Hare from the Cook County, Illinois, Society.

Doctor Crandall then asked permission from the president to speak on the existing conditions in the County Health Department. He explained the problems of a health officer who was having his powers usurped by the chairman of the Board of Supervisors. Following his talk the matter was discussed by Doctors Roome, Brush, Koefod, Brown, Wells, and Henderson.

Doctor Henderson then moved, with a second, that this society go on record as recommending to the Board of Supervisors that they delay action. Doctor Ryan then moved an amendment that the secretary, with two appointed members, draw up a resolution in suitable form and present it to the meeting for adoption. The president appointed Doctors Rexwald Brown and Roome, who drew up the following resolution, which was unanimously adopted and ordered presented to the Board of Supervisors previous to their meeting, September 11:

"Gentlemen: The Santa Barbara County Medical Society, in regular meeting assembled this evening, by resolution passed unanimously, request your honorable body to postpone action on the matter of dismissal of the county health officer until the county medical society has had an opportunity to hear both sides of the controversy.

"The subject of public health and the efficient admin-



istration thereof is of vital importance to the people of Santa Barbara County and of this society. Public health administration should merit and have the whole-hearted support and coöperation of the county medical society as well as of the Board of Supervisors. We feel that the dignity attached to this office warrants judicial investigation before final action is taken."

Doctor Gray then gave a paper on "Two Cases of Peptic Ulcer with Symptoms of Cancer," which was discussed by Doctors Geyman, Brush, and Robinson.

Doctor Evans then gave a paper on "Fibrosis of the Myocardium," which was discussed by Doctors Koefod and Sansum.

Doctor Brown followed with a paper on "The Menace to Medicine" in which he stressed how the control of medicine was being usurped by the laity. This paper was discussed by Doctors Means and Ryan. Doctor Means in his discussion made mention of the unfavorable publicity Santa Barbara and the State Teachers College are getting, and he therefore moved that the society go on record as endorsing the outcome of the Selle case and send the following letter to the Superintendent of Public Instruction at Sacramento:

"The Santa Barbara County Medical Society at a regular meeting unanimously passed the following resolution:

Inasmuch as the Selle case has been tried in the Superior Court, this society wishes to go on record as having entire confidence in the court's decision and feels that as this matter has been definitely decided and settled, the Superintendent of Public Instruction need give no further thought nor take any further action in this case, regardless of what communications to the contrary he may receive."

Doctor Sansum then suggested a dinner meeting upon the return of Doctor Nuzum, but no action was taken.

There being no further discussion the meeting adjourned.

W. H. EATON, *Secretary*.

## CHANGES IN MEMBERSHIP

### New Members

Alameda County.—William H. Baughman, Charles E. Mordoff, Harry W. Plath, Oakland; Leslie T. Peery, Berkeley.

Los Angeles County.—John N. Agan, Harold E. Crowe, William W. Eldredge, Arnold L. Gibson, Alfred G. Henrich, Sam G. Kreinman, Abram Lipkis, Claude A. Macdonald, Joseph Maurer, Paul A. Quaintance, Philip E. Rothman, Rachelle Seletz, Emery Singer, Glenn L. Voorhees, Edith L. Whitcomb, Los Angeles; Leon G. Campbell, Pasadena; Axel W. Swenson, Van Nuys.

San Diego County.—Roger I. Clapp, Roy M. Leford, May Turner Riach, Frank B. Schroeder, Harry J. Stewart, San Diego.

### Transferred Members

George P. Purlenky, from San Francisco to Humboldt County.

T. R. Trick, from Merced County to Los Angeles County.

Herbert R. Stolz, from Sacramento to Alameda County.

### Deaths

Camel, E. George. Died at Alameda, May 15, 1928, age 30 years. Graduate of Creighton University College of Medicine, Nebraska, 1922. Licensed in California, 1923. Doctor Camel was a member of the Alameda County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Campbell, Ralph R. Died at Los Angeles, August 20, 1928, age 61 years. Graduate of Jefferson Medical College, Pennsylvania, 1890. Licensed in California, 1900. Doctor Campbell was an honorary member of the Los Angeles County Medical Association, a

member of the California Medical Association, and a Fellow of the American Medical Association.

Griffin, Joseph Frank. Died at Los Angeles, July 24, 1928, age 63 years. Graduate of Vanderbilt University, Tennessee, 1890. Licensed in California, 1921. Doctor Griffin was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Holland, Joseph H. Died at Riverside, May 31, 1928, age 73 years. Graduate of General Medical College, Illinois, 1888. Licensed in California, 1897. Doctor Holland was a member of the Riverside County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Kellogg, Arthur Bartlett. Died at Los Angeles, September 9, 1928, age 56 years. Graduate of University Medical College, New York, 1894. Licensed in California, 1922. Doctor Kellogg was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

McBride, James H. Died at Pasadena, September 1, 1928, age 79 years. Graduate of Bellevue Hospital Medical College, New York, 1873. Licensed in California, 1877. Doctor McBride was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

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Report of Foot-and-Mouth Disease Commission Supports United States Eradication Methods.—Acting under authority of Congress, the commission on the foot-and-mouth disease went to Europe in May, 1925, to make observations and to perform original research for the purpose of determining the best methods of suppressing outbreaks that may later occur in the United States. Its members were Peter K. Olitsky of the Rockefeller Institute of Medical Research, Jacob Traum of the University of California, and Harry W. Schoening of the Bureau of Animal Industry, United States Department of Agriculture. Owing to the highly virulent nature of foot-and-mouth disease and the fortunate freedom of the United States from its presence, the commission performed its work abroad in countries where the disease is present.

The Results in Brief.—The commission's studies show that animals are most likely to spread the contagion in the early stage of the disease, that practically all cloven-footed animals are susceptible, that the greatest source of danger is removed by slaughter and proper disposal of the involved animals, that the virus may remain alive for one or two months and perhaps longer, and that the disinfecting of premises and restocking of previously infected farms should be conducted under official veterinary supervision.

The commission indorses the slaughter and quarantine method with supplementary safeguards, as regularly used for eradicating the disease on occasions when it appeared in the United States. The main reason for prompt slaughter, the report states, is to remove as soon as possible the greatest source of active virus. Even though the disease spreads rapidly, involving practically all cloven-footed animals, it frequently takes from one to several weeks before all susceptible animals in a herd have contracted the disease and in turn have passed through the highly infectious stage. During this entire period each animal or group of animals becomes a source of danger, in many instances even before any evidence of the disease is seen. The slaughter method removes these potential reservoirs of virus.

Slaughter Method Combines Effectiveness with Economy.—"In support of the value of the slaughter method," the commission added, "it may be stated that in the United States the disease has been eradicated and in Continental European countries it has not been appreciably diminished."



## EXTENSION LECTURE PROGRAM

## SUBJECT INDEX

## Bacteriology and Pathology

Barrow, John V.

## Dermatology and Syphilology

Alderson, Harry E. Templeton, H. J.  
Hollingsworth, M. W. Way, Stuart C.

## Eye, Ear, Nose, and Throat

Barkan, Hans Hebert, Arthur W.

## General Medicine

Brown, Philip King Pierson, Philip H.  
de River, J. P. Pulford, D. Schuyler  
du Bray, Ernest S. Read, J. Marion  
Kilfoy, E. J. Rowe, Albert H.  
Kruse, Fred H. Shepardson, H. Clare

## (a) Allergy

Hurwitz, Samuel H. Rowe, Albert H.

## (b) Cardiology

Kilgore, Eugene S. Read, J. Marion  
Langley, Robert W. Sampson, John J.  
Spiro, Harry

## (c) Carcinoma

Duncan, Rex

## (d) Endocrinology

Lisser, Hans

## (e) History of Medicine

Codellas, Pan S. Gilcreest, Edgar L.

## (f) Preventive Medicine

Kellogg, W. H.

## (g) Tuberculosis

Pierson, Philip H. Rothschild, Max  
Voorsanger, William C.

## General Surgery

Bell, Leo P. Gilcreest, Edgar L.  
Brooks, LeRoy Mentzer, Stanley H.  
Gehrels, Ernst Woolsey, John Homer

## (a) Brain and Spinal Cord Surgery

Towne, E. B.

## (b) Plastic Surgery

Bames, H. O. de River, J. P.  
Pierce, George Warren

## Gynecology and Obstetrics

Emge, L. A.

## Neuropsychiatry

Catton, Joseph Podstata, V. H.  
Harvey, Richard W. Wolfsohn, Julian M.

## Orthopedics

Gottlieb, A. Stewart, Steele F.

## Pediatrics

Sampson, Joseph A. Wolff, Ernst

## Radiology

Duncan, Rex Lawson, John D.

## Urology

Cross, W. W. Kilfoy, E. J.  
Ferrier, Paul A. Kreutzmann, Henry A. R.  
Gibson, Thomas E. Redewill, Francis S.  
Jacobs, Louis Clive Stevens, William E.  
Wesson, Miley B.

## AUTHOR'S INDEX

Harry E. Alderson, M. D., and Stuart C. Way, M. D.,  
320 Medico-Dental Building, 490 Post Street,  
San Francisco.

1. The Determination of Malignancy in Tumors of the Skin. (Lantern slides.)
2. Dermatoses Commonly Seen in General Practice. (Lantern slides.)
3. A Skin and Syphilis Clinic will be held of Locally Selected Cases (five or six).

H. O. Bames, M. D., 512 Pacific National Building,  
Los Angeles.

1. The Correction of Facial Disfigurements.
2. Professional and Lay Aspects of Cosmetic Surgery.
3. The Surgical Treatment of Lipomatosis of Abdomen, Hips and Thighs.

Hans Barkan, M. D., 921 Medico-Dental Building, 490  
Post Street, San Francisco.

1. Headaches Due to Ocular Causes.
2. Industrial Aspects of Eye Injuries.
3. Modern Methods of Cataract Operations.

John V. Barrow, M. D., 2007 Wilshire Boulevard, Los  
Angeles.

1. Human Intestinal Protozoa in Relation to Chronic Diseases.
2. The Etiology and Treatment of Chronic Arthritides as Forecast by Physical and Laboratory Examination.
3. The Liver and Intestinal Tract in Relation to the Anemias.

Leo P. Bell, M. D., Woodland Clinic, Woodland.

1. Diseases of the Spleen and Their Treatment.
2. Preoperative Preparation and Surgical Treatment of Exophthalmic and Thyrotoxic Goiter.
3. Diagnosis and Surgical Treatment of Carcinoma of Rectum and Sigmoid.

LeRoy Brooks, M. D., 731 Medico-Dental Building,  
490 Post Street, San Francisco.

1. Surgical Treatment of Goiter.
2. Ptosis of the Cecum and Ascending Colon, Diagnosis and Treatment.
3. Preoperative Preparation and Postoperative Treatment in the Poor Surgical Risk.

Philip King Brown, M. D., 401 Medical Building, 909  
Hyde Street, San Francisco.

1. Unusual Effects of Local Infections.
2. Heart Disease.
3. Treatment of Peptic Ulcer.

Joseph Catton, M. D., 609 Howard Building, 209 Post  
Street, San Francisco.

1. Medicine and Law.
2. Treat the Patient as Well as the Disease.
3. Organic Neurological Diseases Misdiagnosed as Functional Disease.

Pan S. Codellas, M. D., Schroth Building, 240 Stock-  
ton Street, San Francisco.

1. Egyptian Medicine. (Lantern slides.)
2. Assyro-Babylonian Medicine. (Lantern slides.)
3. Minoan and Etruscan Medicine. (Lantern slides.)

W. W. Cross, M. D., Franklin Building, 1624 Franklin  
Street, Oakland.

1. Infection of the Urinary Tract. (Lantern slides.)
- J. P. de River, M. D., Flood Building, 870 Market  
Street, San Francisco.

1. Plastic Surgery in Military and Civil Practice.
2. Cosmetic Surgery.
3. The Doctor Turns Philosopher.

Ernest S. du Bray, M. D., 510 Medico-Dental Build-  
ing, 490 Post Street, San Francisco.

1. The Management of Diabetes Including a Consideration of Certain Common Complications, Such as Infection, Gangrene, Coma, and Insulin Reactions.

**Rex Duncan, M. D.**, 204 Professional Building, 1052 West Sixth Street, Los Angeles.

1. What the General Practitioner Should Know About Cancer. (For the profession generally.)
2. Surgery in the Treatment of Cancer. (For surgical societies.)
3. Treatment of Uterine Cancer with Observation of More Than Five Hundred Cases Treated During the Past Ten Years. (For the general practitioner, surgeon, and gynecologist.)

**L. A. Emge, M. D.**, 2000 Van Ness Avenue, San Francisco.

1. Menstrual Disturbances and Their Treatment.
2. Office Gynecology.
3. Uterine Displacements—Their Significance and Treatment.

**Paul A. Ferrier, M. D.**, Professional Building, 65 North Madison Avenue, Pasadena.

1. Urinary Tuberculosis.
2. Tumors of the Bladder.
3. Control of Urinary Hemorrhage.

**Ernst Gehrels, M. D.**, 734 Medico-Dental Building, 490 Post Street, San Francisco.

1. The Radical Surgical Treatment of Gastric and Duodenal Ulcer.
2. The Treatment of Gall Stones in the Common Duct.
3. Management of Cancer of the Rectum with Special Reference to Preservation of Bowel Control.

**Thomas E. Gibson, M. D.**, 641 Flood Building, 870 Market Street, San Francisco.

1. The Diagnosis of Adrenal Tumors. (Lantern slides.)
2. Improvements in Perineal Prostatectomy Permitting Primary Wound Closure and Healing of Wounds Without Drainage. (Lantern slides.)

**Edgar L. Gilcreest, M. D.**, 315 Fitzhugh Building, 384 Post Street, San Francisco.

1. John Hunter, His Life and Contributions to Surgery.
2. Some Problems in the Treatment of Elbow Fractures.
3. Arteriovenous Fistula and Its Treatment.

**A. Gottlieb, M. D.**, 1240 Roosevelt Building, 727 West Seventh Street, Los Angeles.

1. Heliotherapy in Joint Tuberculosis (Rollier's System).
2. Treatment of Arthritis Deformans by Physical and Mechanical Means.
3. Obscure Foot Lesions.

**Richard W. Harvey, M. D.**, 711 Fitzhugh Building, 384 Post Street, San Francisco.

1. Combined System Disease. (Lantern slides.)
2. The Care of the Mental Patient.
3. Neuroses in Industrial Medicine.

**Arthur W. Hebert, M. D.**, 819 Flood Building, 870 Market Street, San Francisco.

1. Paranasal Sinus Disease in Children, Manifestation, Diagnosis, and Treatment. (Lantern slides.)
2. The Relation of Paranasal Sinus Disease to Asthma and Hay Fever. (Lantern slides.)
3. What the General Practitioner Should Know About Accessory Nasal Sinus Disease. (Lantern slides.)

**Merrill W. Hollingsworth, M. D.**, 409 First National Bank Building, Santa Ana.

1. General Principles in the Treatment of Syphilis. (Strip films.)
2. Historical Sketches of Syphilis. (Strip films.)

**Samuel H. Hurwitz, M. D.**, 1214 Medico-Dental Building, 490 Post Street, San Francisco.

1. The Relative Importance of Hypersensitiveness

and Infection in Bronchial Asthma. (Illustrative cases.)

2. Diagnosis and Treatment of Bacterial Asthma.
3. Diagnosis and Treatment of Nonseasonal and Atypical Hay Fever.

**Louis Clive Jacobs, M. D.**, 462 Flood Building, 870 Market Street, San Francisco.

1. Diagnosis and Treatment of Lesions of the Posterior Urethra. (Lantern slides and wax models.)
2. The Surgical Prostate and Its Complications. (Lantern slides.)
3. The Infected Prostate and Its Relation to Focal Infection.

**W. H. Kellogg, M. D.**, State Hygienic Laboratory, Berkeley.

1. Anaphylaxis in Relation to the Use of Serums and Vaccines.
2. The Practice of Preventive Medicine.
3. The Prevention of Diphtheria and Scarlet Fever.

**E. J. Kilfoy, M. D.**, 709 Medical Office Building, 1136 West Sixth Street, Los Angeles.

1. Transsacral Anesthesia and Its Relation to General Surgery.
2. Diagnosis and Treatment of Teratoma of the Testicle.
3. Etiology of Peptic Ulcer.

**Eugene S. Kilgore, M. D.**, 724 Medico-Dental Building, 490 Post Street, San Francisco.

1. Precordial Pain—Clinical Types and Significance.
2. Cardiac Neuroses.
3. The Assessment of Circulatory Efficiency.

**Henry A. R. Kreutzmann, M. D.**, 2000 Van Ness Avenue, San Francisco.

1. Diagnosis and Treatment of Urinary Tract Calculi.
2. Diagnosis and Treatment of Urinary Tract Infections.
3. Diagnosis and Treatment of Genital Tract Infections.

**Fred H. Kruse, M. D.**, 916 Fitzhugh Building, 384 Post Street, San Francisco.

1. Recent Advances in Diagnosis and Treatment of Gall-Bladder Disease. (Lantern slides.)
2. Irritable Colon. (Lantern slides.)
3. Peptic Ulcer—Etiology, Diagnosis, and Treatment. (Lantern slides.)

**Robert William Langley, M. D.**, 312 Professional Building, 1052 West Sixth Street, Los Angeles.

1. Coronary Sclerosis—The Clinical Course and Management.
2. Fluoroscopic Study of the Heart. (Lantern slides.)
3. Heart Disease and Its Relation to Obstetrics.

**John D. Lawson, M. D.**, Woodland Clinic, Woodland.

1. Comparative Value of Gastro-Intestinal Series and Cholecystography in Diagnosis of Gall-Bladder Disease. (Lantern slides.)
2. Roentgen Therapy in Treatment of Erysipelas.
3. Use of Radiation in Conjunction with Colloidal Lead in Treatment of Malignancy.

**Hans Lisser, M. D.**, 240 Fitzhugh Building, 384 Post Street, San Francisco.

1. Obesity in Children and Adults—Types and Treatment. (Lantern slides.)
2. Acromegaly. (Lantern slides.)
3. The Uniglandular Origin of Pluriglandular Syndromes. (Lantern slides.)

**Stanley H. Mentzer, M. D.**, Physicians' Building, 516 Sutter Street, San Francisco.

1. What are the Criteria for Cholecystectomy in Cholelithiasis? (Lantern slides.)
2. Cholesterosis of the Gall Bladder—Its Treatment. (Lantern slides.)
3. The Diagnosis and Treatment of Acute Cholecystitis. (Lantern slides.)



**George Warren Pierce, M. D.**, 720 Medico-Dental Building, 490 Post Street, San Francisco.

1. Plastic Surgery in Civil Practice. (Moving pictures and lantern slides.)
2. Plastic Surgery of the Nose and Eye. (Moving pictures and lantern slides.)
3. Cleft Palate and Its Treatment. (Moving pictures and lantern slides.)

**Philip H. Pierson, M. D.**, 811 Medico-Dental Building, 490 Post Street, San Francisco.

1. Recent Observation on Treatment of Pulmonary Diseases in Europe.
2. Etiology, Diagnosis and Treatment of Bronchiectasis.
3. Treatment of Tuberculosis with Some Discussion as to Its Relation to the Varying Types of Disease.

**V. H. Podstata, M. D.**, 404 Union Square Building, 350 Post Street, San Francisco.

1. The Unusual (Problem) Child.
2. The Varieties of Incipient Mental Depression. (Doctor Podstata not available on Mondays.)

**D. Schuyler Pulford, M. D.**, Woodland Clinic, Woodland.

1. The Colloidal Lead Treatment of Malignancy.
2. Dietary Treatment of Epilepsy. (Lantern slides.)
3. The Prevention and Classification of Goiter. (Lantern Slides.)

**J. Marion Read, M. D.**, 1183 Flood Building, 870 Market Street, San Francisco.

1. Blood Pressure—Physiological and Clinical Aspects of Abnormal Pressures. (Lantern slides.)
2. The Patient with a Goiter. (Lantern slides.)
3. The Management of Graves' Disease. (Lantern slides.)

**Francis H. Redewill, M. D.**, 686 Flood Building, 870 Market Street, San Francisco.

1. A New Treatment for Leukoplakia, Malakoplakia and Encrusted Cystitis. (Lantern slides.)
2. Bladder Pressure and Volume Readings with a New Automatic Cystometer as an Aid in Diagnosis. (Lantern slides.)
3. The Successful Treatment of Chronic Prostatitis with the Use of Electrotherapeutic Measures. (Lantern slides.)

**Max Rothschild, M. D.**, 704 Fitzhugh Building, 384 Post Street, San Francisco.

1. The Early Diagnosis of Pulmonary Tuberculosis.
2. The Diagnosis and Treatment of Tuberculosis of Bronchial Glands in Children. (Lantern slides.)
3. The Treatment of Tuberculosis with Specific and Nonspecific Remedies. (Lantern slides.)

**Albert H. Rowe, M. D.**, 242 Moss Avenue, Oakland.

1. Diagnosis and Treatment of Hay Fever and Asthma. (Lantern slides.)
2. Food Allergy in the Etiology of Disease Especially Migraine, Indigestion and Eczema.
3. Insulin Therapy in Diabetes Mellitus.

**John J. Sampson, M. D.**, 291 Geary Street, San Francisco.

1. Heart Sounds and Murmurs—An Analysis of Their Clinical Significance by Electrical Stethoscope Records. (Lantern slides.)
2. Problem of Heart Disease in Public Health.
3. Relation of Heart Disease to Surgery.

**Joseph A. Sampson, M. D.**, Medico-Dental Building, 1127 Eleventh Street, Sacramento.

1. The Incidence and Treatment of Diphtheria Carriers.
2. Simplified Infant Feeding.

**H. Clare Shepardson, M. D.**, 204 Fitzhugh Building, 384 Post Street, San Francisco.

1. Treatment of Diabetes Mellitus in Children and Adults.
2. Diagnosis and Treatment of Diabetic Coma.
3. Complications of Diabetes Mellitus.

**Harry Spiro, M. D.**, 501 Flood Building, 870 Market Street, San Francisco.

1. Consideration of Heart Action in Health and Disease. (Moving pictures of the living animal heart.)
2. Angina Pectoris—Treatment and Diagnosis.
3. Various Cardiac Irregularities, Diagnosis, and Treatment.

**William E. Stevens, M. D.**, 602 Flood Building, 870 Market Street, San Francisco.

1. Urology in Women.
2. Medical and Surgical Conditions of the Urinary Tract During Infancy and Childhood.
3. Urinary Calculi.

**Steele F. Stewart, M. D.**, 817 Westlake Professional Building, 2007 Wilshire Boulevard, Los Angeles.

1. Convalescent Care of Infantile Paralysis.
2. Recent Developments in the Treatment of Spastic Paralysis.

**H. J. Templeton, M. D.**, 3115 Webster Street, Oakland.

1. Dermatologic Manifestations of Syphilis. (Lantern slides.)
2. Electrothermic Treatment of Cutaneous Malignancies. (Demonstration of modalities used.)
3. Common Dermatoses—Diagnosis and Treatment. (Lantern slides.)

**E. B. Towne, M. D.**, 612 Union Square Building, 350 Post Street, San Francisco.

1. Injuries of the Brain and Spinal Cord. (Lantern slides.)
2. Surgery of the Cranial and Peripheral Nerves. (Lantern slides.)
3. Tumors of the Brain and Spinal Cord. (Lantern slides.)

**William C. Voorsanger, M. D.**, 1001 Medico-Dental Building, 490 Post Street, San Francisco.

1. Undiagnosed Cough—A Study of Two Hundred Patients. (Lantern slides.)
2. Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis. (Lantern slides.)
3. Bronchiectasis—Classification, Prognosis, and Treatment. (Lantern slides.)

**Miley B. Wesson, M. D.**, 1275 Flood Building, 870 Market Street, San Francisco.

1. Diseases of the Testicle—Differential Diagnosis and Treatment. (Lantern slides.)
2. Confusing Pyelograms. (Lantern slides.)
3. Diseases of the Prostate—Differential Diagnosis and Treatment. (Lantern slides.)

**Ernst Wolff, M. D.**, Physicians Building, 516 Sutter Street, San Francisco.

1. Classification and Clinical Pictures of Juvenile Tuberculosis of the Lung. (X-ray demonstrations.)
2. Benign Regressing Lung Infiltrations in Juvenile Tuberculosis. (Lantern slides.)
3. Differential Diagnosis of Chronic Chest Conditions in Childhood. (Lantern slides.)

**Julian M. Wolfsohn, M. D.**, 1401 Medico-Dental Building, 490 Post Street, San Francisco.

1. Endocrine Disturbances Associated with Mental and Nervous Diseases.
2. Syphilis of the Central Nervous System. Diagnosis, Modern Treatment with Discussion of Tryparsamid, Malarial and Other Forms of Treatment. (Lantern slides.)
3. What Every Physician Should Know About the Spinal Fluid in Nervous and Mental Diseases.

**John Homer Woolsey, M. D.**, 907 Medico-Dental Building, 490 Post Street, San Francisco.

1. Stomach Surgery of Today. (Lantern slides.)
2. Osteomyelitis of the Jaw. (Lantern slides.)
3. Splenectomy—Indications and Results. (Lantern slides.)

## MISCELLANY

From time to time in this department of California and Western Medicine, appear columns grouped under the following headings: Comment on Current and Recent Articles in this Journal; News; Medical Economics; Readers' Forum; California State Board of Health; and California Board of Medical Examiners. For Book Reviews, see index on the front cover, under Miscellany.

## NEWS

**Lane Medical Lectures.**—The dates for the Lane Medical Lectures, which are to be given by Dr. F. d'Herelle, Directeur du Service Bacteriologique du Conseil Sanitaire, Maritime et Quarantenaire of Alexandria, Egypt, and discoverer of the bacteriophage phenomenon, have been tentatively fixed for the week commencing October 22, 1928. The subjects of the lectures will be as follows:

- October 22—Bacteriophagy.
- October 23—Bacterial Mutations.
- October 24—The Nature of the Bacteriophage.
- October 25—Infectious Diseases.
- October 26—The Phenomenon of Recovery.

In addition Doctor d'Herelle will give a general lecture at Stanford University on "Logic in Biological Researches."

**Semi-Annual Alumni Day.**—Dean Langley Porter has announced that the University of California Medical School will hold its second semi-annual Alumni Day on Friday, November 23, 1928, at the San Francisco Hospital, Potrero Avenue and Twenty-Second Street, San Francisco.

The various departments of the school are now preparing the program, which will consist of operations, ward rounds, exhibits, and short talks on different subjects. Complete details of the program will be mailed to all of the alumni in the early part of November.

A most cordial invitation is extended to the graduates of the Medical School and their friends in the profession to attend the Alumni Day clinics.

In accordance with the custom inaugurated last spring, these Alumni days will be held twice a year—in the spring at the University of California Hospital on the day preceding Charter Day, and in the fall at the San Francisco Hospital on the day before the "big game."

**Dr. William Dick Cutter**, since 1923 dean of the New York Postgraduate Medical School, has been appointed acting dean of the University of Southern California School of Medicine, which will open in September, offering the first year of preclinical medicine. Announcement of the appointment of Doctor Cutter was made by President R. B. von Kleinsmid, who stated that the selection was made after frequent consultation with the medical advisory committee, consisting of Doctors W. W. Beckett, E. A. Bryant, Joseph King, Wayland A. Morrison, and E. N. Pallette, all of Los Angeles.

Enrollment of first-year students in the newly organized school has been limited to fifty-four. More than two hundred applications for admission have been received by the university authorities. From this number the fifty-four best-qualified applicants have been selected. Three years of premedical work in an approved college or university are required for admission.

The newly appointed acting dean is a graduate of Yale University and the Medical School of Johns Hopkins University, from which he received his doctor's degree in 1905. He served his internship at the

French Hospital, New York City, and then joined the hospital staff of the Cooper Queen Mine, Bisbee, Arizona, where he was located from 1906 to 1910. The following year he became professor of physiology and pharmacology in the medical department of the University of Georgia, remaining there until 1919 when he became secretary of the Board of Medical Examiners of New York State. In 1923 he took up his work as dean of the New York Postgraduate Medical School. He resigned that position to accept the headship of the newly constituted school at the University of Southern California.

The new dean is a member of the American Association for the Advancement of Science, the American Medical Association, the New York Academy of Medicine, Phi Beta Kappa, and Sigma Xi.

**University of California Medical School Announces Two Lectures.**—Dean Langley Porter of the University of California Medical School announced yesterday that Dr. Robert J. Ruth, chief of the pharmaceutical division, professional service of E. R. Squibb & Sons, has been obtained to present two public motion picture films in Toland Hall of the University Hospital, Fourth and Parnassus avenues, San Francisco, on Monday, October 8.

The subjects of the pictures will be "Sunshine from the Sea," to be given at 3 o'clock in the afternoon, and "How Science Aids in Controlling Infectious Diseases," to be given at 4 o'clock in the afternoon.

Dean Porter explains that the first picture presents the subject of cod-liver oil and the second depicts the principles of biological therapy, and the methods employed for the manufacture and control of these products. Each film will be preceded by a fifteen-minute talk by Doctor Ruth on the subject to be portrayed. Faculty, students and others interested are cordially invited to attend.—*U. C. Clip Sheet.*

**Annual Report of the American Association for Medical Progress.**—The third annual report of the American Association for Medical Progress, Santa Barbara County branch, has just been issued by its president, George E. Coleman. Dr. Henry S. Pritchett, LL. D., is the honorary president, and Bernhard Hoffmann and Dr. Rexwald Brown are chairmen of the Lay and Medical Advisory Boards.

During the year letters to members have been issued from time to time upon topics of importance. The necessity for the vaccination of school children has been stressed, the untruthful statements of anti-vaccinationists have been refuted, and the desirability of consulting and having faith only in scientifically trained physicians has been emphasized.

Reprints of articles on "Vaccines and Serums," "Deafness and Research," and "Some Medical Discoveries of 1927" were issued in pamphlet form. Reviews of the last two were given wide publicity throughout the country, and particularly in California. Numerous newspaper articles were also published.

Prizes were offered by the president to the Junior High and High School students for the best essays on scientific subjects, particularly those relating to biology. Also an exhibit of bacterial cultures was placed in the Natural History Museum.

In his report Mr. Coleman stresses the necessity for the scientific education of the young as giving a



true perspective of scientific methods in research, in fostering a thorough understanding of the relation of science to our daily lives, and establishing in the mind of the developing child a proper scientific attitude toward disease and the maintenance of bodily health.

The members of the association are therefore urged to use their influence toward the universal training of the young in elementary biology and as far as possible in other sciences.

Continuing, Mr. Coleman says: "Southern California abounds in quacks, spiritual and psychical healers, and various pernicious antimedical organizations. Some masquerade under the cloak of religion, some as lovers of animals, and still others under the banner of 'personal freedom' (antivaccinationists). All are a menace to the public health, for they initiate, too often successfully, legislation inimical to our physical welfare and to medical progress, and tend to destroy a sane and wholesome attitude toward the search for and teachings of scientific truths.

"It is my intention to continue the same educational policy as in previous years, one which I believe will ultimately bring enlightenment in medical matters to this community far above that found in most cities of similar size anywhere in the country. It should be remembered that the benefits of this educational work accrue primarily to laymen and not to physicians. The latter have not the time for it, and in any event cannot be expected to do it all. The ultimate education of the masses, therefore, rests largely in the hands of the more intelligent laymen coöperating as far as possible with the medical profession. I believe we may assure ourselves that the results of our efforts, though not measurable, will tend to be of more or less widespread benefit, and the object for which we are striving will be ultimately attained."

The official endorsement of the work of the association has been given by President W. W. Campbell of the University of California and Dean Langley Porter of the Medical School.

**The Pan-Pacific Surgical Conference.**—Some years ago the cry was "Go West, young man, go West." And the young, independent thinking men went West and built a great empire. Medically the same progressive self-reliant type of mind also climbed the Rockies and began working on the Pacific Slope. The many contributions that have come forth, the excellency of the universities developed, the high type of hospitals erected, the wonderful research institutions conducted, and the fine caliber of the men in the medical ranks have given a confidence to the men of the Pacific Slope that makes them look still beyond the horizon.

So many of the Eastern medical men's vision failed to see over the Rockies that a group of West Coast medical men headed by Dr. George Swift of Seattle, while in Honolulu some two years ago, lifted their eyes to a wider field. And their cry to the Pacific Coast was "Look West, young men, look West."

The Pacific Ocean is a great lake. There are groups of men doing excellent work in each of the twenty-seven nations bordering on that lake. Do you know the great surgeons of Japan, China, Siam, Australia, New Zealand, etc.? They have ideas, vast experiences, different points of view. Would it not be not only profitable, but a great experience to sit about in a cool tropical paradise and meet these men, exchange experiences, discuss their ideas. Why is it that Japanese women have very little cancer of the breast? Why do the Korean surgeons believe in always aspirating rather than operating on liver abscesses? Why in some countries are postoperative pneumonias almost never seen? Would you like to hear and see what surgery does for elephantiasis and leprosy? And so on. A different crowd, different problems, different points of view. And a vacation.

A four-day trip on the Malolo—a floating palace where one hardly realizes one is aboard ship. The

massive coloring of flowering trees and thousands of night-blooming cereus. Wonderful swimming daily in the waves at Waikiki; the green hills; the blue sky; wonderful golf links; excellent water, milk, and sanitation. Snow-capped mountains within ten miles of the seashore; a miscellaneous assortment of craters, with lava in twisted black masses to broken red dirt with great tree ferns growing in it—the story of creation in action. Bits of color, of old native life; the brilliant color and peoples of the Orient; the blends of East and West—an experiment in mixing of nations with the smile still dominant. Can you get that in New York? New experience with more fun and for less money.

The conference is set for August 14 to 22, 1929. The Australian and Japanese doctors will arrive on the 9th of August. The Malolo arrives on the 14th. More details will follow, but make your plans for next August.

Already enough excellent papers are assured to make the conference a real success, from the professional standpoint, but if there are some who cannot stand even a program in such an environment there is a native drink that can change even the darkest cloud to the rosiest red.

The program to be followed is divided into symposia as follows:

Anesthesia; general surgical technique; fractures; tuberculosis of bones; eye, ear, nose, and throat; cancer; genito-urinary tract; roentgenology; hospital standardization; plastic surgery; goiter; surgery of the thorax; surgery of the upper abdomen; abdominal surgery; gynecology; industrial surgery; leprosy.

**American Public Health Association, Chicago, October 15-19.**—Eleven sections will comprise the fifty-seventh annual convention of the American Public Health Association, which will be held jointly with the meetings of the American Child Health Association and the American Social Hygiene Association at the Stevens Hotel. Sections will be divided into the following main groups: epidemiology; public health education; cancer; vital statistics; industrial hygiene; public health engineering; child hygiene; laboratory; health officers; food, drugs, and nutrition; and public health nursing.

Dr. Herman N. Bundesen, president of the American Public Health Association, will deliver the opening address. A second general session will be held on Wednesday when Dr. Frank G. Boudreau will be present from the health section of the League of Nations at Geneva, Switzerland, to speak on "International Health."

**Minneapolis Meeting of the National Auxiliary.**—The sixth annual session of the Woman's Auxiliary to the American Medical Association was held in Minneapolis, Minnesota, June 11-15, 1928. Over 1200 women registered, and they were delightfully entertained and cared for by the local auxiliaries.

The business meetings were largely attended, four hundred women being present at the all-day session of June 14. Much interest was given to the reading of the papers and state reports. There are now well-organized and efficient units in thirty states.

The abstracted proceedings will be printed at an early date and a copy sent to the entire membership.

The following officers were elected:

President—Mrs. Allen H. Bunce, 360 Ponce De Leon Avenue N. E., Atlanta, Georgia.

President-Elect—Mrs. George H. Hoxie, 3719 Pennsylvania Avenue, Kansas City, Missouri.

First Vice-President—Mrs. Evarts V. De Pew, 115 East Agarita Avenue, San Antonio, Texas.

Second Vice-President—Mrs. David W. Parker, 52 Clarke Street, Manchester, New Hampshire.



Third Vice-President—Mrs. Horace Newhart, 212 West Twenty-Second Street, Minneapolis, Minnesota.

Fourth Vice-President—Mrs. Frank W. Cregor, 1621 North Meridian Street, Indianapolis, Indiana.

Treasurer—Mrs. Irvin Abell, 1433 South Third Street, Louisville, Kentucky.

Secretary—Mrs. M. T. Edgerton, 788 Penn Avenue, Atlanta, Georgia.

Parliamentarian—Mrs. F. L. Adiar, 2500 Blaisdell Avenue, Minneapolis, Minnesota.

Directors for two years—Mrs. John O. McReynolds, Dallas, Texas; Mrs. Wayns W. Babcock, Philadelphia, Pennsylvania; Mrs. A. Haines Lippincott, Camden, New Jersey.

Directors for one year—Mrs. F. P. Gengenbach, Denver, Colorado; Mrs. William E. Parke, Philadelphia, Pennsylvania; Mrs. J. T. Christison, Minneapolis, Minnesota.

Chairmen of committees—Organization: Mrs. A. T. McCormack, Louisville, Kentucky.

Health Education: Mrs. George H. Hoxie, Kansas City, Missouri.

Hygeia: Mrs. A. B. McGlothlan, St. Joseph Missouri.

Publicity: Mrs. T. C. Terrell, Fort Worth, Texas.

Program: Mrs. Southgate Leigh, Norfolk, Virginia.

Finance: Mrs. G. Henry Mundt, Chicago, Illinois.

Entertainment: Mrs. William Kuydendall, Eugene, Oregon.

Public Relations: Mrs. E. H. Cary, Dallas, Texas.

Special appointments—Auditor: Mrs. C. W. Roberts, Atlanta, Georgia.

Historian: Mrs. E. V. De Pew, San Antonio, Texas.

Committee on Health Films—Chairman: Mrs. John O. McReynolds, Dallas, Texas.

Committee on Resolutions—Chairman: Mrs. J. N. Hunsberger, Norristown, Pennsylvania.

Committee on Credentials and Registrations—Chairman: Mrs. James N. Brawner, Atlanta, Georgia.

Special Advisory Committee—Mrs. S. C. Red, Houston, Texas; and Mrs. Seale Harris, Birmingham, Alabama.

**Gold Medal to Doctor Francis.**—A gold medal for the most important and original medical work of the year was presented by the American Medical Association at its Minneapolis meeting to Dr. Edward Francis of the United States Public Health Service for his research on tularemia. The disease was first discovered in a ground squirrel in Tulare County, California, in 1910 by Dr. G. W. McCoy of the Public Health Service.

Since then it has been recognized in forty-two states, the District of Columbia, and Japan, but in no other countries. Of 614 reported cases, twenty-three have ended in death. Doctor Francis himself became a victim of the disease when studying his first case of it in Utah. He has become the nation's outstanding authority on tularemia, which has perplexed science since its discovery in 1910.

It is primarily an epizootic of wild rabbits. It has been traced to *Bacterium tularense*, which produces decay of tissue cells in the liver and spleen. The organs become covered with white spots from the size of a pin point to that of a pin head. Doctor Francis examined the livers of one thousand rabbits offered for sale in Washington, D. C., and found ten, or one per cent, to be infected with the bacteria in a virulent form. The inoculation easily passes to man in the process of dressing rabbits. The infection from the

rabbit's liver will enter a wound in the hand and cause an ulcer, enlarged glands at the elbow and axilla, fever, and confinement to bed.

The disease in man is most prevalent in November, December and January, when cottontails are most generally hunted. Cooks, hunters, housewives, market men and persons who prepare jack rabbits for fish or coyote bait, fox, chicken, hog or dog food, often become infected. After it was discovered in the ground squirrel by Doctor McCoy, tularemia passed to the jack rabbits of the West and advanced steadily across the continent until now there remains only one block of six uninvaded states in New England.

The Public Health Service urges for prevention that bare hands be kept out of wild rabbits. The meat is harmless when thoroughly cooked, since a temperature of 133 degrees F. kills the bacteria. Rubber gloves give complete protection when dressing wild rabbits. A rabbit which a dog has caught or which a boy has killed with a club is likely to be sick. So is the cottontail usually brought in by the tenderfoot—the one which sits still at the point of his gun and is about the only one he can shoot. It is a good rule of health, as well as sportsmanship, to take rabbits on the run at twenty-five feet.

In the history of medicine there is only one instance where American investigators alone have discovered a disease of man, isolated its cause, determined its source of infection and the modes of transmission to man, described its symptomatology and pathology and elucidated the other essentials making up the complete knowledge of the disease. That instance is the story of tularemia.—*J. Missouri M. A.*

#### **Interstate Postgraduate Assembly at Atlanta Georgia.**

On October 15 to 19, 1928, at Atlanta, Georgia, the Interstate Postgraduate Assembly of North America will hold a series of meetings at which many of the leading physicians and surgeons of America, as well as a number of celebrated foreign colleagues, will present papers. The railroads throughout the United States are offering special rates to this convention. The scientific program which has been published indicates that all the major aspects of medicine, surgery, and the specialties will receive very broad consideration.

#### **Anniversary Celebration for Dr. William C. Gorgas, Washington, D. C.**

—The Gorgas Memorial headquarters here announce anniversary plans for October 3, the birthday of Dr. William Crawford Gorgas. The fight of Gorgas against yellow fever and malaria and his administrative genius as Surgeon-General of the Army during the World War, as well as his famed work in the field of sanitation are to be stressed in these meetings. Thirty-three health corps of the Memorial will participate.

Of particular importance in this year's citation of the various efforts of the Memorial to honor the name of Gorgas is the statement that "one of the leading scientists in the field of tropical medicine" will soon be chosen by the scientific board of the organization to take charge of the laboratory in Panama. This laboratory is made possible by an annual appropriation of the United States Government of \$50,000, which is to be supplemented by grants from some twenty-one South and Central American countries.

Panama has given over the use of a magnificent edifice recently erected for a proposed school of medicine to the Memorial, and it is predicted by Memorial officials the research campaign will be under way by November 1 in these quarters.



## TWENTY-FIVE YEARS AGO \*

### EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume 1, No. 12, October, 1903

From some editorial notes:

... Reading Notices.—The Kentucky State Medical Association Bulletin has been established as the official publication of the Association, and has reached its third issue. We are certainly glad to see another addition to the number of state association journals, for in time these publications will probably do away with a large number of the cheap and vile so-called "medical journals" that have come up all over the country and thrive on discreditable advertising. Many of these "journals" are owned, body and soul, by one or more nostrum manufacturers, and they are used to aid in debauching the minds of a certain percentage of physicians. . . .

... Another Spasm.—The Poor W. C. T. U. has had another spasm, due to a severe shock to its sense (?) of propriety. The lovely old ladies who cannot reason logically are decidedly opposed to letting the West Point cadets smoke; perhaps it is feared the cadets' brains will not develop beyond the caliber of the W. C. T. U.; perhaps there is some other reason. . . .

... A law that cannot be enforced is a harmful law, for it teaches disobedience. We all know that sumptuary laws are more commonly honored in the breach than in the performance, and most of us would be quite sure that a nonsmoking rule at West Point could not be enforced in the slightest degree. The increase of drunkenness following the abolition of the Army canteen is well known to all, and stands as a monumental object lesson to the harm a lot of misguided cranks who cannot think logically may do if they are permitted to have the chance. . . .

From the Correspondence column:

... Excellent Suggestion.—Santa Ana, California, September 11, 1903. To the Editor of the State Journal: Replying to yours of the 10th will say that Doctor Ball, one of our society members, said yesterday that if we could secure a complete file of the journal he would contribute the binding of the first volume, and suggested that I send a report of each meeting in order that it might become a history of the society and be placed in the library. If you will kindly send us the complete file we will see that each volume is bound and kept in the library. Respectfully yours, H. S. Gordon, Secretary.

From an article on "Lupus Erythematosus" by Alfred B. Grosse, M. D.:

... It is not my purpose to deliver an exhaustive paper on "Lupus Erythematosus" this evening, but simply to present to you a brief epitome of the present aspect of the disease, its therapeutics, a description of the hollaender method, how it was arrived at, and my results with the same. . . .

From an article on the "San Francisco Quarantine Station" by Hugh S. Cumming, M. D., Past Assistant Surgeon, Public Health and Marine Hospital Service:

... "The Quarantine Laws and Regulations of the United States, 1903," are the most enlightened, logical

\* This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

and scientific governing any country. While it is true that even the earliest laws of Virginia, Pennsylvania, Massachusetts, and one or two other colonies, provided for detention and disinfection by the air, sun or fire, of infected vessels, and that Congress, in 1799, passed a national quarantine law requiring all officers of the United States to assist in executing state quarantines and directing collectors to require a pratique, it is equally true that modern quarantine methods were not begun until about 1880. . . .

From an editorial on "A Few Illustrative Cases of Diphtheria" by Fred Grant Burrows, A. M., M. D., San Francisco:

... The Board of Health of San Francisco has kept complete records of the cases of diphtheria that have occurred in that city since 1896. These records show that the disease is increasing; and that the greatest number of cases recorded in any one year occurred during the last fiscal year, 1901-1902. During the six years covered by these records there were 4297 cases of diphtheria and 704 deaths, a death rate of 16.38 per cent. . . .

From an article on "Abdominal Drainage" by Stanley Stillman, M. D., San Francisco:

... The present paper is presented not because the writer has any new theories to advance on the subject of abdominal drainage, but because the general views and practice regarding it have changed so greatly in the past few years, that it seems well to submit it to you for consideration and discussion. . . .

From the minutes of the California Academy of Medicine:

... The case of Hodgkin's disease was discussed by Doctors Ophüls, Brown and Cheney, Doctor Brown suggesting the possibility of tubercular infection being the cause of the disease. . . .

... The case presented by the second patient was discussed by Doctors Tait, Kerr, Huntington, Brown, Cheney, Kugeler, Brunn and Barbat. Doctor Tait suggested that the mass might be a cystic kidney of the adult type, though there were no marked kidney symptoms. Doctor Huntington suggested the advisability of a diagnostic incision under cocaine anesthesia. Doctor Brown saw the man a year ago and at that time thought the mass to be an osteosarcoma arising from the pelvis; he thought the anemia due to the stomach trouble and not at all influenced by the tumor. Doctor Cheney thought the surgeons should be called in to make a diagnosis, and that perhaps the stomach trouble might be relieved by removal of the mass, and possibly reduplication of the stomach wall. Doctor Kugeler suggested a mixed retroperitoneal tumor. Doctor Brunn thought it might be a tumor of the adrenal. Doctor Barbat called attention to the possibility of having very grave involvement of the kidney without urinary symptoms. Doctor Kerr said that operative interference had been suggested to the patient, who declined it, and that it was not urged for the reason of his general anemia condition, few red cells and small percentage of hemoglobin. . . .

How Medical Ethics May Be Taught.—It is suggested that instruction in "medical ethics" may be carried on advantageously by (1) a short introductory series of lectures on general ethics by a qualified member of the philosophy department of the University; (2) lectures or readings on the historical development of "medical ethics," and (3) concluding with free discussions, in which the students take part, on practical case histories involving different aspects of etiquette and ethics in medical practice.—Chauncey D. Leake, *B. of the A. of A. Med. Col.*



## CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, M. D.  
Secretary of the Board

News Items, October, 1928

The profession is warned against a woman of forty years of age; weight about 110 or 115 pounds; about five feet three or four inches tall, reported slovenly in appearance, alleged to be a graduate nurse from the Kansas City General Hospital, who has been making a practice of calling on physicians, asking them to come and see her friend, a woman about seventy years of age, whom she usually has in a hotel and who is reported as suffering from an inoperable abdominal tumor, also narcotic addiction. She has imposed on several doctors, obtaining a tube of half-grain morphin sulphate tablets. The profession is requested to notify the State Board of Pharmacy, should she call.

According to reports A. Basquez, alias A. Jackson, who claims to be a full-blooded Mission Indian, was on August 10, 1928, found guilty of violation of the Medical Practice Act and sentenced to serve sixty days in the county jail, suspended on condition that he refrain from further violation of the law. ("News Items," Cal. Bd. Med. Examiners, September, 1928).

According to reports, C. Bradvich, alias Charles Bancroft, pleaded guilty at San Pedro, August 7, 1928, on a charge of violation of the Medical Practice Act and was sentenced to serve sixty days in the county jail, suspended on condition that he no further violate the Medical Practice Act.

Release by Dr. James Compton, former secretary of the State Board of Chiropractic Examiners, of the secretary's salary to Dr. S. J. Howell, his successor, was announced today at the Chiropractic Board headquarters. The release was by stipulation, signed by both Doctor Compton and Doctor Howell. . . . The funds have been frozen since May 5.—*Sacramento Bee*, August 16, 1928.

No expense money means no work to Dr. C. J. Redmond, one of the "straights" of the Chiropractic Board, who Friday turned in his resignation to Governor C. C. Young, due to the fact that Attorney-General held claims for traveling expenses were invalid.—*Sacramento Union*, August 26, 1928.

It is reported that "Dr." J. C. J. Chartier, Oakland druggist, was on September 17, 1928, for the second time found guilty of violation of Section 17 of the Medical Practice Act and sentenced to serve sixty days in the city prison and pay a fine of \$300. His attorney filed notice of appeal. ("News Items," Cal. Bd. Med. Examiners, May, 1928; September, 1928).

Recent press dispatches relate the arrest in San Francisco on August 20 of "Dr." Eugene J. Davis at 1718 Geary Street, San Francisco. "Davis was captured in a raid made on a 'sanitarium' at 1718 Geary Street, operated by Dr. G. W. O'Donnell. Opium valued at \$1000 was seized, as well as several smoking layouts." The records of the Board of Medical Examiners do not show any such individual licensed to practice in this state. The police records show him to be a contractor and reported as a resident of San Mateo.

If Doctor Dale offers to sell you a "cure-all" patent medicine from his blue Marmon coupe parked on some corner, keep him in conversation until an officer can arrive. That's the advice of San Luis Obispo law officers who have received word from Sheriff James C. Byers of San Diego that the "doctor," alias Robert

S. Detle, alias John H. Dale, is wanted in that county on a grand theft charge. According to their description he is about thirty-eight years of age, five feet four or six inches in height, has gray eyes and auburn wavy hair. . . . License number of the car was given as 1-736-771.—*San Luis Obispo Telegram* September 6, 1928.

Damages to the extent of \$50,657 for burns which he received when an electric pad is alleged to have been permitted to get too hot under him, were asked today in a suit filed by Joseph Arnold against William E. Hicks, chiropractor.—*Los Angeles Herald*, August 21, 1928.

According to reports B. J. Holland on September 11, 1928, pleaded guilty in Los Angeles to a violation of the Medical Practice Act and was sentenced to pay a fine of \$250, suspended for two years.

Charged with sale and possession of morphin, Dr. Ernest A. Lupton today was arraigned before Judge Charles D. Wallace and his preliminary hearing set for September 17 in Department 4. Bail was fixed at \$5000. According to D. C. Whipple, inspector for the Narcotic Division of the State Board of Pharmacy, the defendant sold morphin to a woman operator of the department.—*Long Beach Press Telegram*, September 1, 1928.

Hamilton McClarty, a graduate of the Kansas City College of Medicine and Surgery, 1921, applied to the California Board for a written examination at the July meeting, filing a diploma alleged to have been issued by the National University of Belgium dated March 14, 1928. Information received from the American Consul at Antwerp, Belgium, relates: "If there is any institution or organization in Belgium issuing diplomas under the name of the National University of Belgium, it is doing so without proper authorization, as it does not maintain any school or recognized institution, and such a document therefore is entirely worthless from an academic point of view. I have also communicated with the four universities in Belgium, the ones at Brussels, Liege, Ghent and Louvain, and they inform me that no student by the name of Hamilton McClarty has ever been registered with them for any course. It would appear from the foregoing, therefore, that Hamilton McClarty is endeavoring to file with you a document in which no faith or confidence can be placed."

Held on a tentative charge of murder, John Scott, thirty-three, a chiropractor living at 2721 Avalon, was in the county jail today, while sheriff's deputies investigated the circumstances of the death of a woman said to have been one of his patients. . . . Mrs. Albrecht died early this morning in the Mission Hospital, Huntington Park, from the effects of what doctors said was an illegal operation. Before her death she is alleged to have told of visiting Scott's offices and there to have been given an "electric treatment."—*Los Angeles Express*, August 18, 1928.

Osteopaths are entitled to whatever business comes to their doors, but they may not go after it. That is the sense of an opinion on file today in the District Court of Appeal denying a new trial to Merrill E. Thomas before the State Board of Osteopathic Examiners. The board revoked Thomas' certificate in June, 1926, alleging that Thomas had used a capper to drum up trade for him.—*San Francisco Call*, August 17, 1928.

According to reports Irving L. Ward, M. D., was on August 30, 1928, found guilty in Judge Bacon's court, Oakland, California, on a charge of violation of the Medical Practice Act and sentenced to pay a fine of \$100 and serve sixty days in the city prison.



# CALIFORNIA AND WESTERN MEDICINE

*Owned and Published Monthly by the California Medical Association*

1016 BALBOA BUILDING, 593 MARKET STREET, SAN FRANCISCO

ACCREDITED REPRESENTATIVE OF THE CALIFORNIA, NEVADA AND UTAH MEDICAL ASSOCIATIONS

VOLUME XXIX  
NUMBER 5

NOVEMBER • 1928

50 CENTS A COPY  
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# CALIFORNIA AND WESTERN MEDICINE

VOLUME XXIX

NOVEMBER, 1928

No. 5

## CHRONIC CYSTIC MASTITIS—ITS RELATION TO CANCER OF THE BREAST\*

By ALSON R. KILGORE, M. D.  
San Francisco

DISCUSSION by Elmer W. Smith, M. D., San Francisco;  
James F. Percy, M. D., Los Angeles; Edwin I. Bartlett,  
M. D., San Francisco.

NOT a little confusion of opinion has existed and still exists on the question of the precancerous nature of breast cysts. From this confusion arises uncertainty as to the extent of operative resection necessary to protect patients with breast cysts from future cancer.

It is the purpose of this paper to advance an uncomplicated classification of cystic disease of the breast into two great types which will answer these questions logically and clearly.

The term "chronic cystic mastitis" is perhaps a misnomer, since it is improbable that inflammation plays any active part in producing breast cysts. It is not intended here to inquire into the cause of breast cysts, but, of all the terms applied to the condition, that of "abnormal involution" perhaps comes as near to the truth as any and will be adopted for the purposes of this paper.

We may then diagram involution of the breast as in Figure 1, understanding that in sketching abnormal involution, it is not meant to be inferred that all stages are followed in sequence or that all will be found in any individual breast, but that the scheme is definitely diagrammatic.

Normal breast tissue, when senile or presenile involution occurs, may be changed into either (1) the typical "senile breast" in which there are few gland lobules containing a small number of acini, or no acini at all but only a few ducts, carried in a large amount of fibrous stroma or fat; or (2) it may undergo "abnormal involution."

The chief common characteristic of all forms and stages of abnormal involution is an increase in the number of individual gland elements—ducts or acini or both—and the first stage in the process, shown in the diagram, is one in which there is only increase in the number of gland elements. The lobules are full, contain many acini and are often packed closely together. Each duct or acinus, however, presents a fairly normal appearance under the microscope. There are described

changes in the periacinal connective tissue in abnormal involution, but the size and contour of the acini and the amount of epithelium at least remain practically unchanged.

### CYSTS OF ABNORMAL INVOLUTION

It is from this point on that the two broad types of abnormal involution diverge, and the divergence is concerned with the amount of epithelium and its arrangement in the single gland element—duct or acinus.

In the *productive* or *hyperplastic type*, on the main smooth and of the same thickness during the enlargement of the acini or ducts through various stages of ectasia and microscopic cysts to macroscopic cysts. And when such cysts have attained large size their epithelium tends even to disappear (possibly by atrophy from pressure of accumulated fluid contents) leaving a fibrous wall unlined by epithelium. This is the "blue-domed cyst" of Bloodgood—the simple serous cyst.

In the *productive* or *hyperplastic type*, on the other hand, as the acinus or duct enlarges to cyst size, the epithelial lining is proliferated into several layers or into smaller and then larger folds and finally, often, into papillomata of macroscopic size, composed of almost solid epithelium. This process results in single papillomatous cysts, in "duct adenoma," in circumscribed or generalized cystadenoma or a combination of these.

Now, inasmuch as cancer arises from epithelium and only from epithelium, we would not expect to see it often originate where there is little or no epithelium as in the smooth-walled serous or "blue-domed" cyst. Furthermore, it is in general a characteristic of cancer to arise in abnormal rather than in normal epithelium. It would be expected to arise in cysts or in duct adenoma (productive type of abnormal involution) where the epithelium of the individual element is much increased and where also it is abnormal in its growth and arrangement.

### INCIDENCE OF CANCER IN CONNECTION WITH VARIOUS TYPES OF CYSTS

These expectations prove to be correct. Cancer is very rarely found arising in a simple, smooth-walled cyst. Bloodgood<sup>1</sup> has never observed cancer in the wall of such a cyst. Cheate<sup>2</sup> has observed three cases, but has published no detailed description of the relation of the cancer to the cysts in these cases. Bartlett<sup>3</sup> has observed one case of cancer arising apparently independently in the neighborhood of multiple small blue-domed cysts. These are exceptions to the rule. Cancer

\* From the Surgical Pathology Laboratory, San Francisco Hospital, University of California Service.

\* Read before the Pathology and Bacteriology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

arises no more often in breasts, the seat of simple cysts, than in apparently normal breasts.

On the other hand, papillomatous cysts and cystadenomata not infrequently suffer malignant degeneration. Greenough and Simmons<sup>4</sup> found that of a series of patients operated upon for chronic cystic mastitis, 5 per cent later developed cancer in breast tissue remaining from the first operation. The cases of chronic cystic mastitis discussed in their article were not separated into a hyperplastic and a nonhyperplastic group, but in three of the four cases later developing cancer the description given of the tissue removed at the first operation is typical of the productive or hyperplastic type of abnormal involution.

Bloodgood<sup>1</sup> considers that cancer is to be found at operation in the first instance in 10 per cent (or slightly less) of cystic adenomata and in as high as 50 per cent of diffuse bilateral cystadenoma (Reclus' disease).

In the surgical pathology laboratory at the San Francisco Hospital (University of California Service) there are to date nine specimens presenting unencapsulated cystadenoma of the breast. In six, a lump was present in but one breast (K-243, K-412, K-447, K-925, K-556, K-435); in three, both breasts were diffusely involved (K-667, K-836, K-985). In four of the nine cases, cancer had already developed—in two of the unilateral cases (K-556, K-435) and in two of the three bilateral cases (K-836, K-985). In one of the bilateral cases cancer had already developed in both breasts (K-985). Two of the cases with cancer died within two years of recurrence;

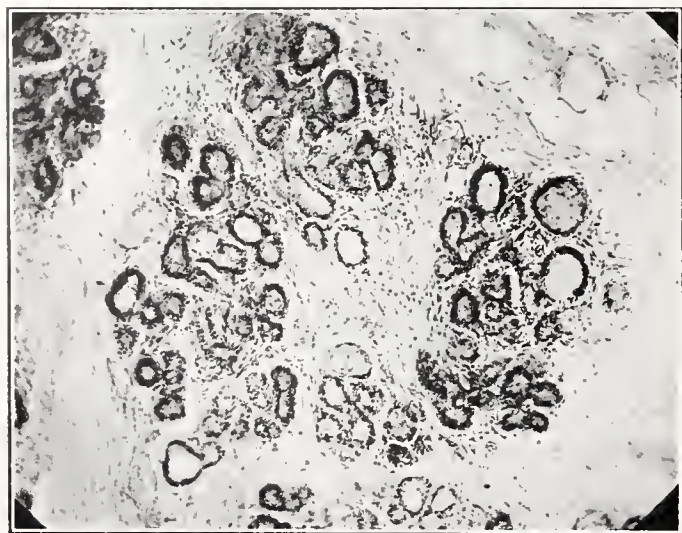


Fig. 2 (K-667).—Early stage of abnormal involution. Increase in number of acini. Beginning dilatation.

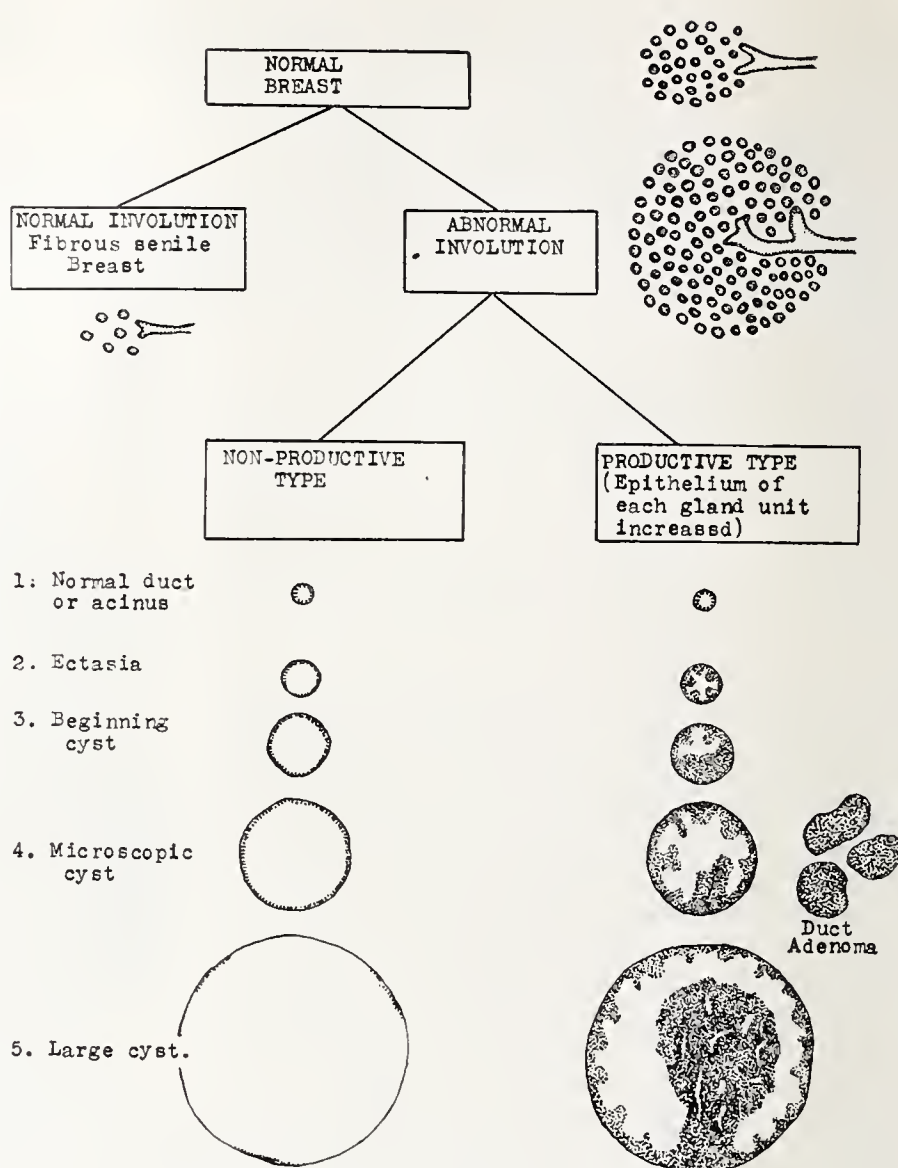


Fig. 1.—Scheme of involution of the breast.

in a third, axillary metastases were present. The fourth patient could not be traced. Curiously enough, two of the four cases of cancer were in male breasts.

In this small group of cases, therefore, one-third of the cystadenomata have presented cancer at the time of operation. On the other hand, thirty breast specimens presenting the nonproductive type of chronic cystic mastitis have been studied and in none of these has cancer been found.

Recognition of the existence of two types of cystic change in the breast is not new. Both are described by various authors, and a very comprehensive discussion of the subject is to be found in Deaver and MacFarland's text on "The Breast."<sup>5</sup> The tendency has been to regard all cysts of abnormal involution as part of one process, if not actually as successive stages of one process, as does Sir Lenthal Cheatele.<sup>6</sup> In their significance, as regards cancer, however, there is urgent reason for clearly differentiating them as has been attempted in this paper.

It was stated earlier that the classification here proposed is diagrammatic. Few processes that go on in human beings divide themselves sharply into hard-and-fast groups, and abnormal involution is



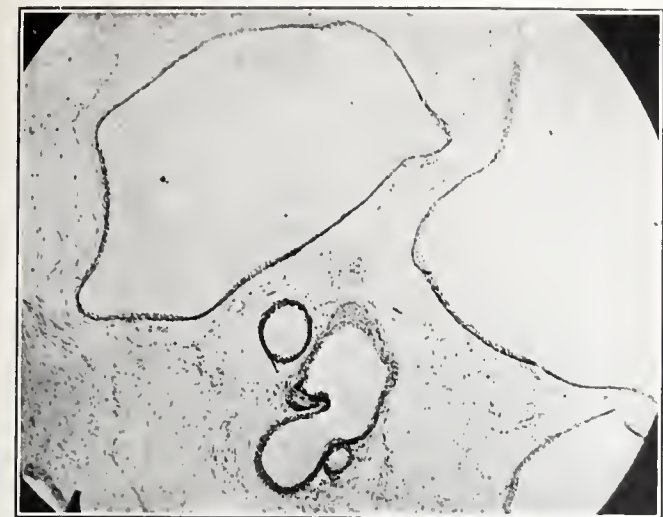


Fig 3. (K-412).—Smaller and larger cysts of nonproductive type. From zone of breast outside a circumscribed area of cystadenoma. Same case as Fig. 5.

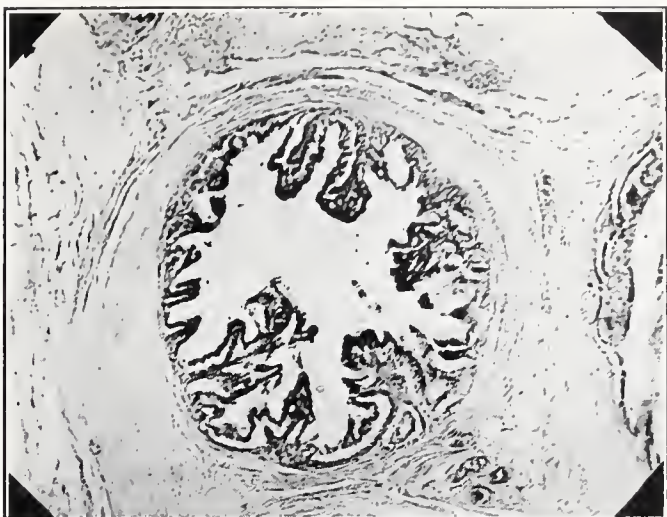


Fig. 4 (K-556).—Early cyst of productive type. Male breast, showing diffuse cystadenoma with one area of typical scirrhus cancer. Died of recurrence two years after operation.

no exception. Bloodgood<sup>1</sup> describes typical hyperplastic changes in the zone of breast tissue about some of his simple serous cysts, and in most specimens of cystadenoma one finds simple smooth-walled cysts, at least of microscopic size, together with those of hyperplastic type. Nevertheless most specimens removed at operation will be found to present a general or at least a local predominance of one or other type, so definite as to present comparatively little difficulty in deciding to which group each belongs.

#### GROSS APPEARANCE

The two great types of abnormal involution usually present gross features permitting recognition at the operating table. The nonproductive type presents one or many, large or small, smooth-walled serous cysts with breast tissue presenting the usual mixture of fat and fibrous stroma of normal color and fairly normal elasticity. The productive type presents single or multiple papillomatous cysts or a diffuse process of larger or smaller extent, with small cysts plugged with whitish-yellow necrotic material. The entire mass is typically harder and less elastic than normal

breast tissue and often presents a distinct yellowish tinge on cut section.

#### SURGERY

Rational surgery of cystic disease of the breast follows logically from the pathology and the tendency to cancer discussed. For isolated areas of the nonproductive type of abnormal involution, including the single blue-domed cyst, the establishment of diagnosis by exploration and the removal of the lesion and a small zone of surrounding breast is sufficient. Conservation of the remaining breast is entirely justified. The breast is not more likely to develop cancer than is normal breast. There are only two reasons for removing the whole breast: (1) the possibility of small cysts in remaining breast tissue later developing into large cysts, *i. e.*, recurrence requiring the annoyance of another operation, a risk estimated by Greenough and Simmons<sup>4</sup> as not over 10 per cent; and (2) the possibility that if cancer should develop the patient might fail to observe it in the

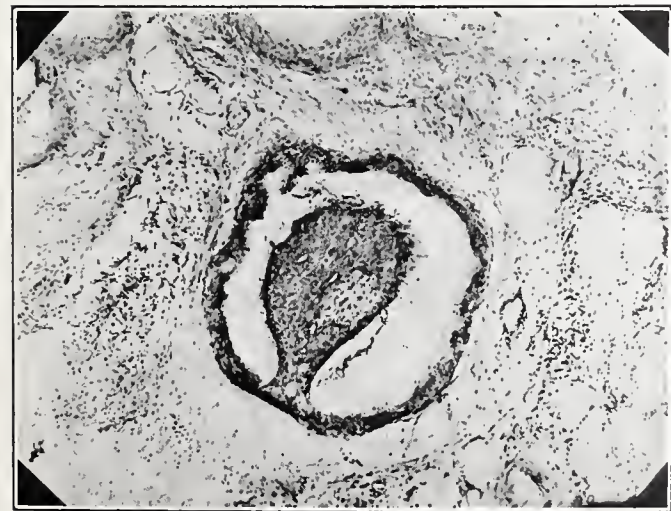


Fig. 5 (K-412).—Papilloma in small cyst of productive type. Circumscribed cystadenoma occupying approximately one lobe. Excision with zone of surrounding breast; remainder of breast conserved. Well three years after operation.

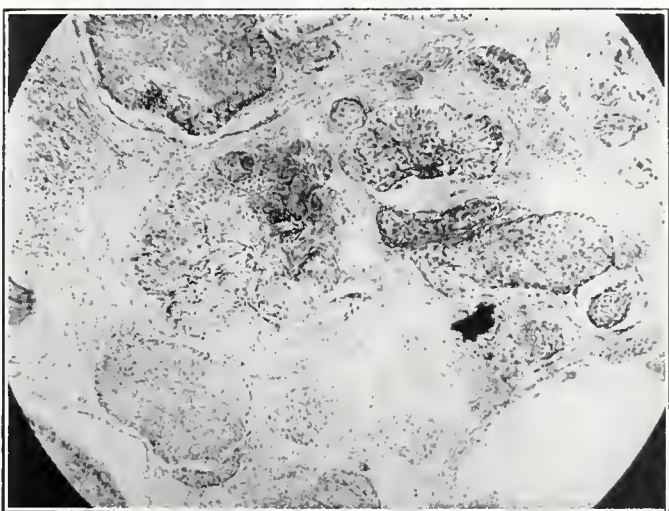


Fig. 6 (K-435).—Duct adenoma, possibly early cancer. Diffuse cystadenoma occupying one-half of one breast. One small area of typical scirrhus cancer found. Immediate radical operation. One axillary gland involved. Dead of cancer two years after operation.



presence of an otherwise "lumpy" breast. Certainly neither of these reasons is an absolute one.

In the productive type, on the other hand, it is essential that all the tissue affected by the process be removed—local removal of an entire localized area—removal of the entire breast or of both breasts if the process be diffuse and general. Furthermore the physical characteristics of cystadenoma make it one of the most difficult of benign lesions to differentiate from cancer at exploration. Since the process frequently involves a considerable amount of breast and frozen sections of one or a few scattered areas cannot be safely trusted to rule out cancer, and since experience shows that cancer is already present at the time of first operation in a considerable number of cases, the surgeon must be prepared to do an occasional radical operation when the pathology is in doubt.

490 Post Street.

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#### DISCUSSION

ELMER W. SMITH, M.D. (St. Mary's Hospital, San Francisco).—Doctor Kilgore's paper on the subject of chronic cystic mastitis covers a very important phase of breast tumors, and his classification of conditions is a very good one which I feel serves to clear the field considerably in this line of research.

I quite agree with him that the large blue-domed cyst is probably not a product of inflammation. Though we may find lymphocytic infiltration around some of these cysts, it is not an unusual finding in the presence of any tumor.

My own conception of a chronic cystic mastitis is that of the smaller, multiple, dilated acini that one encounters in regions of proliferating interstitial fibrous tissue, which shows marked collections of lymphocytes. Cysts so produced, I believe never reach the proportions of the single blue-domed cyst or cyst adenoma of Doctor Kilgore's nonproductive type. This condition may be an incitant of cancer. While reports of malignancy, occurring in the cystic adenomata, are relatively rare, I believe that it does occur. A few years ago I saw one removed that was about two centimeters in diameter and appeared to be so typical of the blue-domed type that the surgeon was ready to close the wound, but gross incision showed solid tissue on one side, and a quick frozen section demonstrated atypical epithelial cells with mitoses and other characteristics of a malignant epithelioma. The breast was removed by radical operation. Whether the tumor was a proliferative form of Group 1, or a degenerative form of Group 2, of Doctor Kilgore's classification I cannot say, but it certainly points to the necessity of careful inspection before passing upon the benign qualities of any breast tumor. I feel, in regard to the proliferative type of tumors, that when in doubt about the malignant tendency we should, for the safety of the patient, recommend ablation of the entire glandular structure. For, as Doctor Kilgore says, we may miss actual malignancy by some of our methods of hit-or-miss sections. The operative mutilation is not very great, and I do not feel that the

muscles and underlying fascia should be cut unless there is fairly conclusive evidence of cancer.

✽

JAMES F. PERCY, M.D. (1030 South Alvarado Street, Los Angeles).—As a record of laboratory investigation in breast cancer, the work reported today by Doctor Kilgore is of definite value. With a larger number of cases studied with the same care, data of increasing value that may be utilized for the benefit of the patient when he comes to one's office, or is seen at the operating table, will be available.

Unfortunately tumors of the breast as yet do not safely lend themselves to a quick clinical or microscopic diagnosis. No better confirmation of this can be found anywhere than in the illuminating, striking, and exceedingly valuable articles referred to by Doctor Kilgore in the *British Medical Journal* and *British Journal of Surgery* by Sir G. Lenthal Cheattle. These papers describe actual experiences where the first reports from a frozen section characterized the tumor as benign, to be followed later by one that unmistakable malignancy had been found. Doctor Kilgore recognizes and suggests this possibility when he tells us that "few processes that go on in human beings divide themselves sharply into hard-and-fast groups and abnormal involution is no exception." It is this ever present definite uncertainty that makes the judicious pause when it comes to expressing a decisive opinion as to the exact nature of a palpable breast tumor before removal and careful laboratory study. And yet it is a positive diagnosis that the patient is looking for, and usually he expects it at the first visit to his physician. Unfortunately palpation and inspection is the least certain of all the methods of diagnosis at our command in the early or late case of breast cancer. By the same token the gross appearance on removal of any tissue in question when sectioned will often present presumptive evidence to the experienced as between the productive and nonproductive types of breast involution. But such proof should not be employed as the final word unless it unquestionably seems to justify a radical type of breast removal. If it is, occasional regrettable mistakes are certain to be made.

The most reliable methods in pathology will always remain with diagnostic experts such as is Doctor Kilgore, following the deliberate laboratory study procedures suggested in his paper. But unfortunately this slower but more dependable technique is not ideal from its practical aspects, because of the delay before the results of the investigation can be known. The inherent dangers of this postponement can be greatly minimized and indeed probably entirely overcome if, when practicable, two things are done as the most essential part of the biopsy technique. First, that the involved tissues be removed only with the cautery. And second, that all of the visible and palpable structures in the pathological process be removed. This, from my point of view, is the only perfect and complete biopsy, and when combined with an immediate frozen section, permits of the most reliable determination of the character of the pathology in the breast, especially when passed upon by a trained and experienced pathologist. But even when these all but ideal conditions obtain, I have seen mistakes occur that were most difficult when attempts were made to explain them away. It is the horns of dilemmas such as these that make the articles just referred to of Sir Lenthal Cheattle so illuminating and of so much practical value. The positive frozen section prepared in this way at once settles our doubts and with the least possible chance for untoward results to the patient.

✽

EDWIN I. BARTLETT, M.D. (490 Post Street, San Francisco).—The failure to recognize and correctly treat carcinoma of the breast in its earliest stages when cures are possible is the greatest tragedy that can befall a conscientious surgeon. The patient, on the other hand, finds herself between two dangers, namely, the loss of her life through incomplete surgery in the



early stages of carcinoma, and the unnecessary sacrifice of her breast. Any woman will unhesitatingly suffer mutilation in order to save her life, but the unnecessary sacrifice of a breast is to her a tragedy of only slightly less degree than loss of her life. The up-to-date surgeon today can assure his patients that they need have no fears regarding mistakes either of omission or commission. He employs the exploratory incision and through a knowledge of the gross and microscopic pictures can proceed with the treatment with absolute certainty.

Bloodgood is accredited with the adage that simple amputation of the breast is not enough for carcinoma and is too much for anything else. There are exceptions to the rule regarding the simple amputation of the breast, and Doctor Kilgore has named and described them. The cyst adenoma which he discusses may either be benign or malignant. Ofttimes the benign form is diagnosed cancer, and this error has resulted in some reported cures of cancer without the complete operation. At any rate, cystadenoma is precancerous if not already malignant, and calls for amputation of the whole breast or the complete operation. It should be emphasized, however, that the exceptions to the rule constitute only a very small percentage and that complete removal of the breast is seldom justified.

Doctor Kilgore's paper is timely and instructive. A surgeon is no longer justified in operating on any breast without a knowledge that will enable him to interpret what he sees at exploratory operation or without a pathologist with that information to advise him. Furthermore the time has come when hospital pathologists must be thoroughly trained in breast-gland histology because the number of breasts to be explored is already considerable and is increasing rapidly. Careful study of this and other articles is highly recommended and, above all, thorough study of all breast specimens both at the operating table and later in the laboratory.

## THE FULL-TIME PROFESSORSHIP IN MEDICAL EDUCATION

By PHILLIP E. ROTHMAN, M. D.  
*Los Angeles*

FOR over a decade physicians and educators have been concerned with a phase of medical education known as the full-time or whole-time system. The subject is of unusual importance and has provoked one of the most stirring and bitter controversies recorded in medical history. Upon its solution depends, to a large extent, the future of American medical education.

Only to emphasize how critical this question has become, it is interesting to note that Harvey Cushing in his recent biography of Osler still fears to make public Doctor Osler's letter to Remsen on the full-time system because as he says, "It is too intimate to publish in full until the still troubled waters he speaks of shall have temporarily quieted down to await the next beneficial agitation." Any analysis of the system is extremely difficult, for it is dependent on a wide variety of factors, and the results at various institutions are by no means uniform. Nevertheless there are certain remarks which are applicable to the entire system, and changes to be made which should prove generally beneficial.

### AMERICAN ORIGIN OF THE FULL PROFESSORSHIP SYSTEM

To define the full-time system may best be done by quoting the original announcement of the General Education Board of the Rockefeller Founda-

tion when, in 1913, the sum of one and a half million dollars was given to the Johns Hopkins Medical School "for the purpose of so organizing the departments of medicine, surgery and pediatrics that the professors and their staffs might completely withdraw from private practice in order to devote their entire time to their respective departments." Needless to say this announcement created tremendous agitation and medical men at once became divided in their opinions on the matter. The benefits of the plan are, of course, apparent to everyone. How much more advantageous it would be if men of ability, unhindered by the trials and financial worries of private practice, could devote all their time to the hospital, the students and to research. The arguments against the plan may best be stated by quoting extensively from Osler's letters (Cushing). It must be remembered that Osler, as Regius Professor of Medicine at Oxford, was not only the leading physician of the day, but a classical student of considerable reputation and an educator as well.

### OSLER'S VIEWPOINTS

The first letter was written to Doctor Remsen and intended for the Hopkins faculty only:

"... The subject of whole-time clinical teachers, on which I send you the promised note, is one of great importance, not only to universities, but to the profession and to the public at large. It is a big question, with two sides. I have tried to see both, as I have lived both, and as much perhaps as anyone, can appreciate both. . . . These are some of the reasons why I am opposed to the plan as likely to spell ruin to the type of school I have always felt the hospital should be and which we tried to make it—a place of refuge for the sick poor of the city; a place where the best that is known is taught to a group of the best students; a place where new thought is materialized in research; a school where men are encouraged to base the art upon the science of medicine; a fountain to which teachers in every subject would come for inspiration; a place with a hearty welcome to every practitioner who seeks help; a consulting center for the whole country in cases of obscurity. And it may be said, all these are possible with whole-time clinical professors. I doubt it. The ideals would change, and I fear lest the broad open spirit which has characterized the school should narrow, as teacher and student chased each other down the fascinating road of research, forgetful of those wider interests to which a great hospital must minister."

In an address at St. Bartholomew's Hospital the subject is again discussed:

"... It is attractive to think of a group of superclinicians, not bothered with the cares of consulting practice, and whose whole interests are in scientific work. It is claimed that as much good will follow the adoption of the plan of whole-time clinicians as has followed the whole-time physiologists and anatomists. Against it may be urged the danger of handing over students who are to be general practitioners to a group of teachers completely out of touch with the conditions under which these young men will have to live. The



clinician should always be in the fighting line, and in close touch with the rank and file, with the men behind the guns who are doing the real work of the profession. The question, too, is whether the best men could be secured; whether academic and scientific distinctions would satisfy these men. Then for the hospital itself, would it be best to keep our best in clinical seclusion. Would there not be the danger of the evolution throughout the country of a set of clinical prigs, the boundary of whose horizons would be the laboratory, and whose only human interest would be research? I say frankly that I am not in favour of the whole-time clinical teacher."

And finally in a letter to Dr. George Dock, he adds that:

" . . . It would be (he said) a very good thing to have a few men at research institutes—Cole at the Rockefeller, for example—devoting all their time to the work, but what I dread is to have a class of clinicians growing up out of touch and necessarily out of sympathy with the profession and with the public. This would be nothing short of a calamity. There are always men of the quiet type like Halsted who practically live the secluded life. To have a whole faculty made up of Halstedes would be a very good thing for science, but a very bad thing for the profession."

#### ABRAHAM FLEXNER'S INFLUENCE

The leading figure in medical education at that time was Mr. Abraham Flexner. He was an officer of the General Education Board which financed the full-time academic programs. His article on "Medical Education in the United States and Canada" was largely responsible for eliminating many of the poorer schools and raising the standards of others. In regard to this report Osler stated that "it had done much good," but that it was also "full of errors and misconceptions." Many of Mr. Flexner's critics, including Doctor Osler, attribute his frequent misinterpretations of medical affairs to the fact that he is an "outsider" or one who does not possess a medical degree. The opposition, of course, had no actual facts and no reliable data at its disposal. They could only peer into the future and guess at the results. We know now that they were prophets of no mean ability and that their fears were well founded. However, Mr. Flexner, Doctor Welch and others carried the day, and the full-time system went into effect.

#### THEODORE JANEWAY'S CONCLUSIONS

Dr. Theodore Janeway was appointed the first full-time professor of medicine at Hopkins and, in 1918, he published his opinions on the system. This was the first article to appear from a man of sound judgment who had had the opportunity of witnessing at first hand the workings of the system. Despite its importance, it attracted little or no attention, chiefly because it was printed in *Educational Reviews*, a small journal with a limited circulation. There are queer rumors afloat that the article was destined for a more prominent magazine, but was partially suppressed and later allowed to appear in the aforementioned publica-

tion. No attempt has been made to verify the authenticity of these rumors. In the April 21, 1928 number of the *Journal of the American Medical Association* the article was republished after an interval of ten years, and its present interest signifies that the problem still occupies a very prominent position.

Doctor Janeway analyzed the system remarkably well and emphasized particularly the necessity and value of outside consultations which were now denied him. He recorded his opinion that "such consultations with good practitioners at their patients' bedsides, beyond their value to the patient, are mentally stimulating to the consultant and have great educational value for the physician who calls him. They demand the highest qualities of mind and heart, and always the great medical teachers of the past have been great consultants. They extend the influence of the school beyond its students to the profession of the community. They likewise keep the teacher in touch with the point of view and needs of the practitioner. They can be declined whenever they conflict with university engagements and entail an absolutely limited and not a continuing obligation." He also felt that professional activities should not be subject to definite university rules. It implied that the men were not to be trusted to prefer university duties if given full freedom, and full freedom is the most prized possession of the university teacher. The rigidity of the system seemed to him a great drawback and there was always a constant danger that it would lead to a loss of initiative and a tendency toward easy acquiescence in a rather routine and sheltered life. A very pertinent objection which he greatly stressed was the question of individual responsibility. In a full-time department no one man assumes complete responsibility. "A mistake or omission on the part of any single member of the staff is minimized or offset by some other member's diligence. This is the indispensable condition for training young physicians without jeopardizing the welfare of the patients. In equal measure it becomes an obstacle in the training of the more mature. A sense of deep individual responsibility, so essential in making and keeping a good physician and which is assured by the acceptance of money for his services, is, therefore, lacking for the upper members of a hospital staff." Eventually it seems that such a system will produce a type of teacher who is inferior to the teacher consultant of the past. He especially decried the "holier than thou" attitude of the full-time men toward the rank and file of the profession. The complaint that the head of the department is exposed to an increasing burden of petty administrative detail is clearly evident in many departments today. It is an evil, however, which may exist under any system and deserves no further mention here. Finally he believed that the system could be remedied by permitting outside practice and by giving term and not life appointments. Abuse of their positions should result in dismissal which, in virtue of their outside practice could be accomplished without hardship to the



individual or the university. The salaries should be proportionate to the time given to teaching and research so that each individual should not be obligated to give to the department any work except along such lines as those to which he is best fitted.

#### GEORGE DOCK'S OPINION

In 1921 Dr. George Dock, the first full-time professor of medicine at Washington Medical School, spoke on the full-time system before the Southern Medical Association. His paper (*Southern Medical Journal*, 1922, XV), although very different from Doctor Janeway's, contains many practical points which cannot be disregarded. He showed very clearly that the system had failed to provide or make good the fundamental conditions stated at its inauguration. It had not provided adequate salaries to permit the staff to lead lives exempt from the cares and temptations of practice. Actually, it would seem that the cares and temptations had become augmented. Secondly, it had not provided "adequate university hospitals fully controlled by the medical school with proper clinical material, fully equipped laboratories, library and staffs, not only for teaching and research, but also for the care of the patients." He reasoned that no difficulty would be encountered in finding able men for all positions if these initial requirements were fulfilled. Although at present some few institutions have excellently equipped hospitals he felt that it was perfectly idle for schools that cannot raise the necessary money to think about full time. The full-time system had not taken cognizance of the changing value of money and that in 1921 money was worth just half as much as when the system started. "Too much attention, he said, has been given to the salary of the head of the department." The salaries of the younger men on the staff are so meager that the system has a tendency to force younger men out of academic life just as they begin to be valuable to the institution. He is either driven to private practice or another school with usually more advance in administrative duties than of salary. The school he leaves must take a younger or less mature man. This seems in direct conflict with the full-time theory. We need to develop not only the head, but a good staff. He estimates that between seventy thousand and one hundred thousand dollars is necessary for the annual budget of one department (medicine). In order to secure this amount an ominous change has occurred. Instead of the necessary funds coming from the university treasuries, as originally planned, the staffs are now expected by some university administrators to earn the income needed not only for their own salaries, but by their departments or even other departments by securing rich patients and charging them large fees or even by collecting small fees from a large service. The vicious features of such schemes are evident, and Doctor Dock has pointed out very clearly many of the dangers and evils that would eventually arise. He concludes by again emphasizing the point that the success of the system depends largely on the ability to raise

properly sufficient funds to carry out the original plans.

#### CONDITIONS DURING A TEN YEARS' TRIAL

Nearly ten years have elapsed since the publication of Doctor Janeway's article and a final judgment in regard to the success of the system is still an impossibility. It must be emphasized that very drastic changes may take place in medical education and hospital work without any demonstrable effect on the public at large. It is not at all comparable to a business institution where one system means success and the other failure. Only those who are intimately concerned with the changes and actively engaged in the work are aware of the differences. Very few of the men who accepted full-time positions at the inauguration of the system are alive today. The positions are occupied at the present time by the so-called second generation of full-time men. It seems, as one gathers all the facts together, that the first régime was a complete success. The men fulfilled every expectation and built up enviable reputations for their departments. The research work of the period attracted universal attention and the students received the very best in medical education. The possibility that these men succeeded because of their remarkable ability and not as a result of the system is a very real one. One feels that they would have done just as well under any system or any condition. The basis for this supposition is due to the lack of success of the present régime and the vast difference that is at once apparent between the departments of today and the former ones. The fears of Osler and Janeway have become realized. The young men who have grown up in the somewhat "cloistered seclusion" have not become "masters of their art." It must be emphasized that there are exceptions, but that these few unusual men are rarities and have become great medical leaders despite the system, so to speak. Many of the early full-time men had been engaged in private practice or part-time work before assuming their positions. This one fact, I believe, is largely responsible for the success they achieved. At present, as Osler stated, we are handing over our students who are to become general practitioners to a group of teachers completely out of touch with the conditions under which these young men will have to live.

Of particular interest is an investigation of those specific factors in the system which have prevented the average young full-time men from becoming able and leading clinicians. The absence of experience in private practice has already been emphasized. One must remember that the majority of patients in private practice have no organic ailment. Their suffering, however, is fully as real and significant as the more dramatic emergencies seen in the hospital. There is little doubt that the good practitioner can benefit his average patient and accomplish far greater results than a member of a full-time medical staff. Doctor Peabody in an article published in the *Journal of the American Medical Association* (1928, Vol. 90, April 14), states that "experience has made it perfectly clear that the men who are in successful outside prac-



tice have something very definite and important to contribute to the teaching, and, as already indicated, they must be regarded as an integral part of the teaching service and receive proper recognition in the way of titles, salaries and clinical opportunities."

There also exists in many full-time departments of today an insistent demand for the publication of research work. This obligation is keenly felt by each member of the department, and is the one factor above all others which threatens to destroy the present system. Many of the medical articles are no longer accurate scientific contributions, but have degenerated in a large measure to nothing more or less than a form of advertising. Fielding Garrison (*American Mercury*, Vol. VII, 1926), quotes Ochsner as having shown that many "bulky *arbeiten* are sterile, stodgy, prolix compilations, the substance of which could be reduced to a few pages. He also mentions the late President Woodward of the Carnegie Institution, who saw modern medical literature as a gigantic unnecessary proliferation, its bibliographies, tending to become "repositories of trash." He mentioned men like Halsted, "who wrote little and then well and to the point," as all too few today.

#### MAJOR DIVISIONS OF MEDICAL RESEARCH

Medical research has two principal divisions: the one form, popularized by Boerhaave and Sydenham, consists in recording accurate clinical observations gleaned from hourly bedside attendance; the other type is based on pure science and is carried out chiefly in the laboratory. Both are essential and equally important, but in recent years the latter has come to occupy perhaps a superior position which is not entirely justifiable. The result has been that the young men have entered into this type of research unmindful of the fact that ordinary college and medical school training in no way equip them for scientific investigation. Complicated problems are attacked and an enormous amount of time and money are consumed. Technical difficulties and repeated mistakes make the undertaking a very laborious one. Not infrequently incomplete or erroneous results are rushed off to print and only serve as one of the many useless articles which clutter up the medical literature today.

It is important to realize that a well-trained chemist could solve many of these problems in a much shorter time at very little expense. It is still more important that a year or two have elapsed in which clinical work has been largely neglected for research. Peabody states that "experience has made it clear that one of our common errors is to expect too much of these men in that we allow them to work too independently both for the good of their own training and for their productiveness. With rare exceptions, few men are qualified either technically or intellectually to carry on clinical research of any great importance until they have had several years of experience in laboratory work and in the study of disease in the wards. This means that it is only the older members of the medical staff who may be expected to

undertake continuous problems of any particular significance."

#### THE SYSTEM, AT PRESENT AND IN THE FUTURE

The question emphasized by Osler as to whether the best men could be secured for full-time positions is of primary importance. It is a well-known fact that during the last few years the greatest difficulty was encountered in filling several supposedly desirable positions. These positions remained vacant for intervals of one to three years. Men in private practice or part-time work will rarely accept full-time appointments. Three new medical schools have been organized recently and vacancies or temporary appointments are frequent occurrences. So few well-prepared men are available that institutions are willing to wait a considerable length of time if there is any possibility of securing their services. It is interesting to contrast existing conditions to a scene that took place in Göttingen some seventy-five years ago when a Prussian Geheimrath offered Jacob Henle the chair of anatomy at Berlin and requested a decision within forty-eight hours. It is also noteworthy that in recent years several prominent teachers have given up full-time work for private practice.

Janeway pointed out that full-time men must be masters of their subjects. Only long practical training can make them masters and constant application can keep them such. These qualities are acquired at the bedside and operating table. Still, promotion and calls to other universities depend largely on research achievements. A full-time professor recently told me that he had no room in his department for the pure clinician. This unfortunate tendency is emphasized by Peabody, who says that "too little attention is paid to broad clinical experience, something that is acquired only by many years of hard work and too much attention to research ability, or, what is worse, to the possible development of research ability in some promising young men. The publication of a number of good papers does not really indicate any marked capacity for investigation, and such papers certainly offer limited evidence of ability to run a department of medicine." Janeway felt that it was impossible to become a master clinician when both research and teaching were required. John Howland was one of the very few men who accomplished all three, but he was in all likelihood what we have come to term a genius. Most men find it difficult to become proficient in one, and since present departments demand all three, only glaring mediocrity results.

A somewhat different condition exists in the departments of surgery, gynecology, urology, and obstetrics as compared to medicine, pediatrics and psychiatry. The former to a certain extent escape the detrimental effects of the full-time system. No amount of research work will secure a full-time clinical position if the applicant's technical operative ability is not first-rate. Moreover the surgical branches realize much more keenly the necessity of daily application and rarely neglect the clinical side. The medical group, however,



is entirely different. Men who have been doing laboratory work for years are given clinical positions with a ward of patients to treat and students to teach. The position has been awarded as the result of research achievement. Research is now neglected and student and patient fare badly while clinical experience is slowly and laboriously acquired. The surgical services are largely free of these "converted investigators." Serious blunders are usually avoided, as the responsibility is so divided that someone saves the situation. Repeated mistakes, especially in the interpretation of physical signs and laboratory tests, are not infrequent. There is an excess of indulgence in new therapeutic fads, and the necessary conservatism, which is indispensable in training students and which comes only from long clinical experience, is lacking. The deficiencies of these full-time men are quickly observed by the ever critical students, interns, and house officers. The autopsy table reveals many more clinical errors today than during the first full-time régime. Discontent and open rebellion occur from time to time, and the realization that a complete full-time system is impossible can no longer be doubted. The "let it alone" spirit of the older generation is, as always, strenuously combated by the more radical spirit of youth. Changes will be made, and the spirit expressed in one of Randolph Bourne's essays seems strikingly evident just now. "Youth does not simply repeat the errors and delusions of the past, as the older generation with a tolerant cynicism likes to think; it is ever laying the foundations for the future. What it thinks so wildly now, will be orthodox gospel thirty years hence. The ideas of the young are the living, the potential ideas; those of the old, the dying or the already dead. This is why it behooves youth to be not less radical, but even more radical than it would naturally be. It must be not simply contemporaneous, but a generation ahead of the times, so that when it comes into control of the world it will be precisely right and coincident with the conditions of the world as it finds them."

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## PYELOGRAPHY\*

### ERRORS IN TECHNIQUE AND INTERPRETATION

By MILEY B. WESSON, M. D.  
San Francisco

DISCUSSION by George G. Reinle, M. D., Oakland; Guy Manson, M. D., Fresno; J. C. Negley, M. D., Los Angeles.

**PYELOGRAPHY** is a modern procedure. Voelcker and von Lichtenberg, in 1906, used colloidal silver suspension for outlining both the bladder and the kidneys; Albarran and Ertzbischoff, in 1908, confirmed their work and recommended the procedure to the French Urological Association; Braasch, in 1910, popularized pyelography in the United States and in 1911 Sir John Thomson-Walker introduced it into England.

In the beginning the procedure was used only by trained specialists but with the gradual elim-

ination of the various dangers and the common use of the cystoscope by general practitioners, the making of pyclograms has been put in the same category with the appendectomy—practically everybody doing them. However, pyelography and even simple cystoscopy is still held responsible for an occasional death and hence must not be regarded as a harmless maneuver. In this paper an attempt is made to emphasize the simplicity and exactness of the various steps and at the same time call attention to the dangers that beset the path of the bold but untrained novice.

### ANESTHESIA

All methods of anesthesia are in use, probably the most popular being a hypodermic of morphin and the injection of one ounce of 4 per cent novocain into the empty bladder one-half hour before the cystoscopy. Sacral and spinal anesthesia are not widely popular because of technical difficulties, and general anesthesia is rarely used, for obvious reasons, but in children, highly neurotic adults and those with irritable bladders it is often necessary. The total lack of sensation in the bladder makes the cystoscopy very easy but unfortunately the patient is unable to tell when his bladder is over-filled and pathological tissue often tears very easily. This danger was impressed upon me long ago by a famous cystoscopist who admitted four ruptures of the bladder under general anesthesia and in each case only a small amount of fluid was used.

### STERILIZATION OF CYSTOSCOPE AND CATHETERS

Any method of sterilization that does not soften the litharge of the cystoscope lens so as to allow moisture to enter and fog the mirror is satisfactory. Heat must be avoided. Dipping the cystoscope in phenol, followed by washing in water and then immersing in alcohol is the most popular method. The more dilute the phenol and alcohol the longer the cystoscope can be left in the solution without damaging the instrument.

Sterilizing catheters by soaking them in mercuric cyanid solution and siphoning the solution through them is a stereotype procedure. Formaldehyd or formalin vapor is equally popular, but unless this antiseptic is thoroughly washed out all infected urine specimens will have been sterilized and the cultures will consequently be negative—and misleading. Boiling catheters, or keeping them in glass tubes connected with a receptacle of liquid formaldehyd causes them to become soft.

### IRRIGATING FLUID

The irrigating medium in large clinics and hospitals is boiled water, but no private office can provide this in sufficient quantity, hence tap water is commonly used and to this is added the proper amount of some colorless antiseptic such as meroxyl or mercuric cyanid. The bladder is not sensitive to temperature, hence cold water can be used. Oversympathetic nurses are inclined to use warm water and this tends to fog the cystoscope lens and often softens the catheters to such

\* Read before the San Francisco County Medical Society, November 29, 1927.

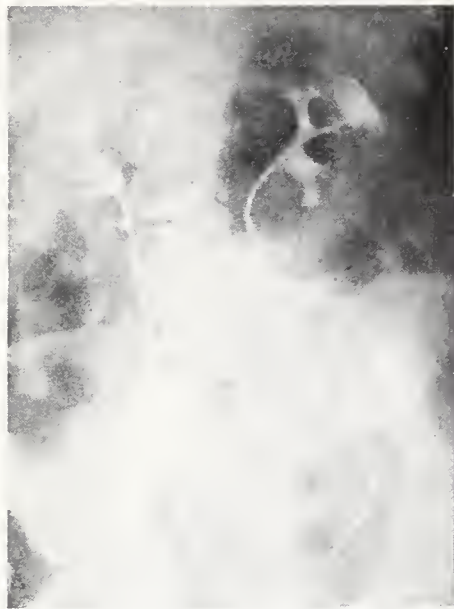


Fig. 1—Catheter passed through middle calyx into cortex; perfect pyelogram as well as subscapular injection; no abnormal symptoms; picture made twenty-four hours later showed complete absorption. (Courtesy of Samuel Goldman.)



Fig. 2—Cystogram with reflux up left ureter and resultant pyelogram.



Fig. 3—Same as Fig. 2. Bladder drained with catheter, showing two diverticula and shadow of partially drained renal pelvis.

extent as to cause the ureteral catheterization to be a failure.

#### CATHETERS

No. 6 catheters are the popular size as most of the cystoscopes will not carry two No. 7. The large catheters having more "body" are easier to introduce than the small ones and because of the greater lumen the collection of urine is more satisfactory. Joseph recommends No. 5, to permit free reflux and prevent overinjection. Sterile olive oil is the ideal lubricant for the catheters as it facilitates their passage not only through the rubber tips on the cystoscope, but also in the ureter. Puncture of the ureter or the kidney substance is not unusual, hence catheters with whalebone filiforms should not be used, and too great force should be guarded against. (Fig. 1.)

#### URETERAL COLLECTIONS

The ordinary routine is to collect specimens from both kidneys and the bladder for microscopic examination, culture and comparative urea. Then phenolsulphonephthalein is injected intravenously, the appearance time noted and collections made for two fifteen-minute periods.

It is not uncommon to have a catheter anuria and so small an amount of urine excreted as to make valueless the entire procedure. This condition is due to nervousness and small fluid intake and can be prevented by having the patient enter the hospital the night before, and be given ample fluids throughout his waking hours.

#### PYELOGRAPHIC MEDIA

Collargol was first used as a contrast fluid and made excellent pictures but over-injections were followed by abscess formations, et cetera. Thorium nitrate then came into vogue. It was very expensive and old solutions were very toxic. Then sodium iodid, and sodium bromid were popularized. The latter was found to be irritat-

ing and to cause thrombosis in concentrated solutions. In 1925, Braasch, in whose clinic the preparation was first used, said that "he thought the use of 15 to 25 per cent sodium bromid belonged to the dark ages." (The fact that concentrated solutions are found in the cystoscopic rooms of most hospitals indicates that they are still in general use.) Cameron recommended 13½ per cent sodium iodid, but 12 per cent makes just as clear pictures and has become the popular strength. In cases of hydronephrosis, some operators inject 5 cc. of 30 or 40 per cent sodium iodid so that the end product will be about 12 per cent and not so dilute as to fail to make a clear picture.

#### TECHNIQUE OF PYELOGRAMS

In the early days the pyelographic medium was injected with syringes. Fatalities following over-injection resulted in a study of pressure and it was found that, although the operator was sure that he could regulate the amount of pressure, a manometer registered 200 mm. to 250 mm. when he thought he had 30 mm. or 40 mm. It has long been known that the pressure in the blood varies from 20 mm. to 55 mm. of mercury and that when the intrapelvic pressure exceeds 60 mm. the secretion of urine ceases and filtration occurs in the reverse direction. Hence, the pyelographic medium became an intravenous injection.

Cautious operators drained the kidney pelves, then injected sterile water until pain was produced. This measured amount was considered the capacity of the pelvis and a corresponding amount of pyelographic fluid was injected. The pictures generally showed the pelves to be incompletely filled, due either to an irritable pelvis or leakage down the catheter.

In 1910, Baker suggested gravity pressure. A very simple and inexpensive apparatus consists of





Fig. 4—Hydronephrosis of right kidney apparently due to aberrant artery at uretero-pelvic juncture. Differential examination was misleading as there was a catheter anuria on the left and the function on the right side was normal. A unilateral pyelogram would have shown merely a normal filling of left kidney.



Fig. 5—Plain picture, staghorn calculus on left and small stone on right. The left kidney is infected but doing all the work.



Fig. 6—Same as Fig. 5, pyelograms.

a ring stand with a two-foot rod, a double burette clamp, two 50 cc. burettes, two pieces of  $\frac{1}{8}$ -inch rubber tubing 40 inches in length, two pinch cocks and two metal adapters for connecting the catheters to the tubing. The length of the tubing allows the patient to be moved on the cystoscopic table without moving the apparatus, and the height of the rod of the ring stand holds the pressure within the limits of safety. This is very important, for when the container is held by hand the arms become tired and the tendency is to become impatient and elevate the burettes so as to finish. My experience has been that an 18-inch column is sufficient and that when the fluid ceases to run the pelves are filled and the pictures can be made before the patient complains of pain.

Four 11-inch x 17-inch pictures are sufficient—a plain picture with catheters in position (for stones), stereo-double pyelograms, and an upright immediately after withdrawal of catheters (for ureter and ptosis of kidney). Each film should be developed as soon as exposed so as to make sure that the pyelograms are satisfactory and prevent subjecting the patient to another examination, unnecessarily.

The use of double pyelograms when not *specifically contraindicated* is very important, as it permits of comparison of the two sides. Furthermore, there is an economic factor which must not be overlooked as the patient who has his pyelograms made at two sittings has to pay double fees throughout.

Deaths in the past have been attributed to double pyelography, which rightly were due to overinjection of toxic media. A double pyelogram is merely a pelvic lavage with harmless 12 per cent sodium iodid, a picture being made during the process, and is really less dangerous than a lavage with 1 per cent silver nitrate or 3 per cent mercurochrome. An anuria, temporary

or permanent, may follow pyelography, the introduction of ureteral catheters, or even the passage of a cystoscope. Evidence of marked renal insufficiency, as indicated by a very low phthalein output, contraindicates not only pyelography but any form of urinary tract manipulation. The use of 12 per cent sodium iodid has removed the danger of overinjection, so discussions of the relative merits of known gravity pressure versus unregulated syringe pressure are of little interest except as to the complete filling of the kidney pelves and prevention of pain to the patient. Extravasations between the tubules or beneath the capsule are promptly taken up by the blood stream and disappear within a few hours. The discomfort experienced by the patient depends upon the amount of extravasation. The pain is similar to that produced by overenthusiastic poorly trained urologists who, following pyelograms made with sodium iodid, do a kidney lavage with silver nitrate and then withdraw the catheters leaving the kidney filled with a precipitate of silver iodid.

#### FLOATING KIDNEYS

At one time floating kidney was a common diagnosis and patients had to be firm in order to keep their low-lying kidney, ptosis of the kidney in itself being a definite indication for surgery. With the advent of compensation insurance the lazy man with a slight injury and a congenital low kidney has become a subject of envy as he is practically pensioned for life.

The roentgenogram taken in an upright position with the ureteral catheters as a splint so as to make a sharp kink in the ureter is sufficient evidence for the patient, and too often for the Commission. Of course, trauma is of practically no importance as an etiological factor, and suspension should not be done on floating kidneys unless the three cardinal symptoms—pain, gastro-





Fig. 7—Over-injection, sodium iodid spraying out through or between tubules; 24-inch gravity pressure; no untoward symptoms.

intestinal disturbances and nervous manifestation—are present.

The following brief case reports demonstrate the necessity of general examinations before special urological studies are made, and also the dangers that

follow the false security engendered by an incomplete urographic examination.

#### CASE REPORTS

**CASE 1 (No. 713). Median Bar, Vesical Diverticula and Pyonephrosis.**—V. E. R., male, age 37, married, first seen May 13, 1926, because of dysuria and hesitancy. Preceding his marriage seven months ago he was examined by a general practitioner who cystoscoped him and reported that his bladder was normal. His general appearance was not good, his face was drawn, there was a very marked scoliosis, and the left chest was practically collapsed because of an empyema seven years before, resulting from a gunshot wound.

His residual urine was 500 cc. He had a definite median bar. Cystograms were done and there was a reflux up the left ureter to the kidney pelvis (Figs. 2, 3). Because of his poor general physical condition it was thought best not to attempt to remove the diverticulum. A Punch operation was done and after a few months the residual decreased to 2 ounces. The patient brooded over the fact that the internist would not approve an immediate radical diverticulectomy, and in spite of his great improvement, committed suicide.

**CASE 2 (No. 820). Hydronephrosis Apparently Due to an Aberrant Artery.**—N. B. W., male, age 32, married, seen on September 1, 1926, complaining of hematuria. Nine years ago he had a severe sharp pain in the lower right quadrant and blood in the urine. A diagnosis of appendicitis was made, but all symptoms disappeared following an injection of a hypodermic of morphin. Six months later there was a similar attack which responded to the same treatment. Three months later the same thing happened and a complete kidney investigation was done because of the hematuria; all findings were negative. There were no further symptoms until one week ago. At that time there was a sharp pain in the right groin accompanied by severe hematuria, which required morphin.

Cystoscopy showed a normal bladder; No. 6 catheters were used and a very small amount of urine collected. Differential phthalein was attempted but none appeared on the left side; 22 per cent appeared in thirty minutes on the right. Pyelograms were then made (Fig. 4). The left kidney was negative, but the right consisted of a number of large pouches. A week later the patient was recystoscoped. A No. 11 Garceau catheter was passed into the right kidney and six ounces of fluid withdrawn. This case is very interesting in that the urine is sterile, the differential phthalein indicated that the left kidney was not functioning and that the right was normal; whereas, an opinion based upon the pyelogram alone would have called for immediate extirpation of a kidney with good function, or if a unilateral pyelogram had been made of the non-functioning side the hydronephrosis on the opposite side would have been missed.

**CASE 3 (No. 1052). Bilateral Renal Lithiasis, the Kidney with a Staghorn Calculus Alone Functioning.**—J. P. V.,

age 39, married, first seen June 17, 1927. Two years ago there was left kidney colic and after five or six dilatations two small stones passed. On February 23, 1927, he fell fifteen feet and received a compound fracture of the right leg. On admission to hospital the urine specimen contained no blood. Three days later he noticed a slight pain in the right side. On June 2, 1927, he had renal colic and during the night vomited three times. A total phthalein done on June 17, 1927, showed 55 per cent in the first hour. A complete kidney investigation showed *Staphylococcus albus* in the bladder and the left kidney; the urine from the right kidney was sterile and contained no pus. The phthalein appeared on the left side in three minutes and 18 per cent returned in twenty minutes. On the right the appearance time was nine minutes and there was only a trace of phthalein. This checked with the comparative urea. The pictures showed a stone 1 cm. in diameter freely movable in the pelvis in the uninfected, non-functioning, right kidney (Fig. 5). The left kidney is infected and the pelvis is completely filled by a staghorn calculus, yet it is doing all of the work (Fig. 6).

The treatment should be immediate right pyelotomy before the kidney is destroyed by the stone rolling about. After the function returns in that kidney, the removal of the staghorn by nephrotomy should be considered.

**CASE 4 (No. 677). Stricture of Ureter Following Pelvic Surgery, Cured.**—Mrs. L. J., age 38, first seen April 27, 1926, complaining of pains in lower right quadrant of stabbing character. Eight years ago the left tube was removed because of an ectopic pregnancy and a right ovarian cyst "the size of an orange" was extirpated. Later a right floating kidney was diagnosed and attributed to removal of its former pathological support—the cyst. No treatment was prescribed. Urinary history was negative except for nocturia (one time) for years and marked urgency. Function was normal and the urine uninfected. Cystoscopy—No. 7 catheters passed with ease to both kidneys. No. 11 Garceau catheters were then used, the one on the right passed with ease, but on the left would not enter beyond five inches. Pyelograms were normal except for overinjection (24-inch gravity pressure). (Fig. 7.) When the patient was placed in an upright position the right kidney dropped a distance of three inches. A kidney belt was prescribed. At subsequent visits the left ureter was dilated so that a No. 11 Blasucci catheter passed with ease. She has been free of pain and all bladder symptoms for one year.

**CASE 5 (No. 880). Congenital Bilateral Ptosis of Kidney—Right Nephropexy Followed Unilateral Pyelogram.**—R. M., age 39, married. He was alleged to have suffered a "sacro-iliac slip and dislocated his right kidney" on June 26, 1923, when an automobile he was cranking

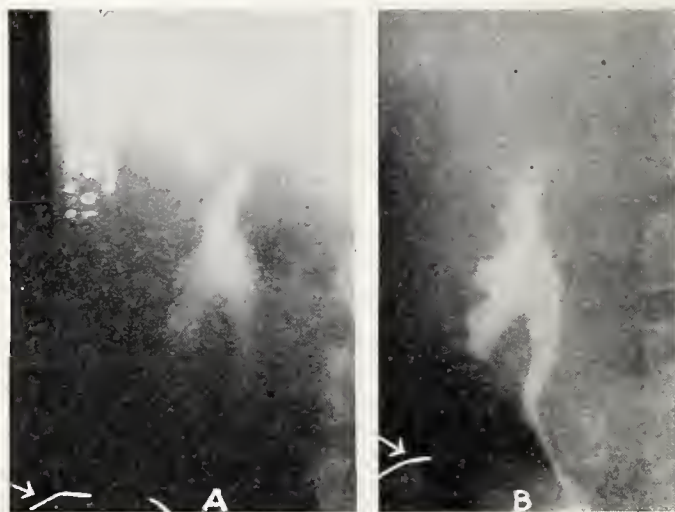


Fig. 8—Bilateral ptosis of kidney. "A" before nephropexy; "B" four years later. (Arrow indicates brim of pelvis.)





Fig. 9—Calcified hematoma left gluteus muscle.

practically no descent in the upright position. The plates made before the nephropexy were of the right kidney alone, so the low left kidney was overlooked. The kidney is now lower than before it was suspended. This is a case of bilateral congenital low kidney without symptoms, but very valuable for compensation purposes. Had the ptosis of the kidney not been found he would undoubtedly have continued as a "sacro-iliac slip" case. Traumatic dislocation of the kidney is possible but highly improbable unless the heavier liver is first displaced.

CASE 6 (No. 589). *Calcified Hematoma*.—Mrs. D. S., age 42, married, complaint frequency. This patient is a neurotic who spends her time in various doctors' offices. Her appendix has been removed, the gall bladder explored, and eight years ago some pelvic surgery was done. She had an attack of hematuria one year ago. For the past ten years she has had nocturia three or four times, often a daily frequency of every hour or two hours, dysuria and marked urgency. Kidney function normal. Cystoscopy was negative; specimens from the kidneys were sterile. Pyelograms were not permitted. A plain picture showed several calcified areas in the gluteal muscles. The patient gives a history of having been a steeplechase rider in her youth and admitted emulating the Prince of Wales by spending more time on the ground than on her horse's back. The genito-urinary tract is objectively normal. The symptoms of which she complains may or may not be present. The calcified hematoma were symptomless until she saw the picture.

#### SUMMARY

1. Ten years ago pyelography was considered a dangerous surgical procedure. Today, because of the innocuousness of the reagents used and the successful sales talk of the high-powered cystoscope salesman, a large number of the general practitioners do their own pyelographies.

2. Pyelography is ordinarily a simple "fool proof" procedure, but cystoscopy is not, and complete anuria and deaths follow urethral instrumentation and are then attributed to the lavaging of the kidney pelvis with sodium iodid—a harmless intravenous agent.

3. The use of warm or hot water as an irrigating medium results in fogged lens and soft catheters. The bladder is relatively not sensitive

to cold water and the irrigating solution should never be above room temperature.

4. Three quick ways of spoiling catheters are sterilization by storing them in a container connected with a receptacle of formaldehyd, by boiling them, or by subjecting them to a prolonged soaking in bichlorid of mercury solution.

5. Twelve per cent sodium iodid is a harmless and satisfactory pyelographic media.

6. Fifteen to twenty-five per cent sodium bromid as a pyelographic medium represents potential danger and discomfort to the patient.

7. Double pyelograms are necessary so that the two kidneys can be compared. Bilateral bizarre shapes, et cetera, are congenital but unilateral ones indicate a pathologic condition.

8. Double pyelograms can be taken with impunity in any case that has been subjected to bilateral ureteral catheterization.

9. The most satisfactory method of injection is by the gravity method, using two burettes held in a stand at a height of 18 to 24 inches above the patient. When the fluid stops running the kidney pelvis is filled, and this may take one minute or five minutes.

10. With a syringe there is generally over-injection, which spoils the picture and causes the patient discomfort for a few hours. The same is true of a gravity burette held by a nervous or impatient assistant, for the tendency is to elevate it and hurry the filling.

11. Six cases are reported in abstract with pictures: (a) Diverticula of bladder with reflux to left pyonephrosis. (b) Hydronephrosis of right kidney due apparently to aberrant artery. Passage of catheters caused anuria of normal left kidney. (Fortunately, a pyelogram of left kidney alone was not done.) (c) Bilateral renal lithiasis, small stone in uninfected, non-functioning kidney, staghorn in infected functioning kidney. (d) Over-injection with 24-inch gravity pressure, the solution spraying out through or between the tubules. (e) Congenital bilateral ptosis of kidney. Unilateral pyelogram resulted in nephropexy and four years later kidney had resumed approximately its former position. (f) Calcified hematoma symptomless until the picture was seen by the neurotic individual.

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#### DISCUSSION

GEORGE G. REINLE, M. D. (532 Fifteenth Street, Oakland).—We are indebted to Doctor Wesson for his very complete exposition of the difficulties attending interpretation of pyelograms, a matter to which those other than urologists are apt to give insufficient consideration. Comparative pyelograms of the two sides are of course of inestimable value, and the occasional cystoscopist cannot too thoroughly familiarize himself with the different types of silhouette seen in normal cases, for these are not infrequently diagnosed as pathological.

For purposes of anesthesia, we have found the routine administration of two grains of codein three hours before cystoscopy and one grain one hour before cystoscopy to be of very considerable advantage. Catheter anuria, which previously used to occasion some embarrassment, we have now practically



overcome by the administration of 500 cc. of water one hour before cystoscopy.

In the technique of instillation of the pyelographic medium itself, we invariably use the gravity method, the height of the column of water being not over eighteen inches above the patient, as Doctor Wesson suggests. Invariably, the amount of fluid which flows in without causing the patient discomfort is carefully measured. As a general thing, if 10 cc. of fluid flows rapidly, we take a picture at this time and run it through the developer, inspecting the film while it is still wet; if then there seems to be indication for the necessity of further fluid, which is sometimes the case, we may repeat the picture with such quantity of media as is necessary to demonstrate the pathology.

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GUY MANSON, M. D. (1020 Mattei Building, Fresno). I am pleased to hear Doctor Wesson say double pyelography is not especially dangerous. I know that many of the large urologic clinics advise against it. For economic reasons, I have made double pyelograms for several years, and have never seen any bad results. Few patients are willing to stand the extra expense and discomfort of two examinations, if it is possible to accomplish the same thing in one.

Doctor Wesson has pointed out that with too great an intrapelvic pressure, filtration occurs in the reverse direction and the pyelographic medium practically becomes an intravenous injection. This brings up an important point not mentioned in Doctor Wesson's paper: namely, the danger of doing a pyelogram in the presence of a kidney infection. I have seen one case of septicemia that could only be accounted for by a pyelogram, although the gravity method was used in doing the pyelogram.

There are so many normal conditions of the kidney and ureter, often misinterpreted by a pyelo-ureterogram, that it would be impossible to cover the field in a paper of this kind. Braasch has written a whole volume on the subject. There is, however, one common mistake I think worthy of mention. That is mistaking peristaltic waves of the ureter for strictures.

Doctor Wesson cites a case of hydronephrosis diagnosed as appendicitis. We see so many cases of kidney lesions where an appendectomy has been done without relief, that I feel we are justified in advising a kidney study on all cases diagnosed as chronic appendicitis, before an appendectomy is advised.

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J. C. NEGLEY, M. D. (527 West Seventh Street, Los Angeles).—Doctor Wesson's paper is so well presented that any discussion is limited to personal exceptions.

In one place is the statement "pyelography and even cystoscopy is still held responsible for an occasional death and hence must not be regarded as a harmless maneuver," and later, "double pyelograms can be taken with impunity in any case that has been subjected to bilateral ureteral catheterization."

These two statements do not appear to be consistent. I would hesitate to do a double pyelogram on renal tuberculosis, infective pyelonephritis, low functioning kidneys, etc., and yet each one of them must have double ureteral catheterization for diagnosis.

My investigations from records of the Los Angeles General Hospital where hundreds of pyelograms are taken, show less than 1 per cent double pyelograms. In private hospitals, the percentage is but slightly more and of the double pyelograms taken, over 97 per cent are taken by men who are not urologists. In a recent visit to some of the Middle West urological clinics, I found the same opinion prevailed as to double pyelograms and did not find any of the urologists doing double pyelograms as a routine.

Quoting Young, in his textbook on urology, "Should a pyelogram be made of the opposite kidney

at the same sitting?—The majority of urologists think not."

Braasch, in his recent textbook on "Urography," states: "Simultaneous bilateral pyelography as a routine procedure is not advisable."

I believe it unwise to submit a patient to a double risk for economic or any other reason.

Since the many urologists are opposed to routine double pyelograms, it would seem better not to advocate it through the medical press, because the untrained or occasional cystoscopist might try it, as being sanctioned by a well-known urologist.

I have seen in consultation, a few cases having extravasation of the iodid into the kidney substance. All of them experienced extreme pain, shock, sometime anuria, always hematuria and sometimes serious damage to the kidney substance, as the pathologist's report on one of them will show. The patient had been pyelogramed (on right side) twice in eight weeks, all of the work done by one who does cystoscopy occasionally. I saw the patient at the time of operation which was done six days after the last pyelography.

*Pathologist's Report*—Kidney normal size and shape. Capsule strips easily, leaving a smooth pink surface, with the exception of several scattered red, irregular shaped areas, over which capsule is thickened. There are several deep red pyramidal foci, having their bases at the surface, and involving the cortex and papillae.

Sections including red foci show thickened capsule, beneath which there is lymphocytic and some leukocytic infiltration. There is also evidence of old hemorrhage, as shown by the presence of endothelial leukocytes, containing blood pigment. Between the tubules there is much extravasated blood. Many of the tubules and some of the glomeruli are atrophied. Diagnosis: Infarction; inflammation.

This case showed definite extravasation of the iodid at the time of both pyelograms. One cannot but wonder what would have been the result if a double pyelography had been done.

Perhaps Doctor Wesson and others of like skill and wide experience will be able to do routine double pyelography by gravity method without harm or bad results, but I hardly believe the casual cystoscopists are quite ready to perform double pyelography as a routine procedure, even though sanctioned by a man of Doctor Wesson's high standing.

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DOCTOR WESSON (closing).—Doctor Negley has emphasized some of the points that I wanted to bring out in this paper. Ureteral catheterization is a surgical procedure and is fraught with just the same danger as an appendectomy. Unfortunately, untrained and poorly trained men do both, with impunity, and then are shocked by the occasional fatality.

Anuria and exitus follow urethral and ureteral instrumentation, and the operator confuses the issue by blaming it on double pyelography. I have recently seen a case of anuria and death following the passage of a sound, and one of anuria of four days' duration following plain cystoscopy, the chagrined cystoscopist having failed to introduce a catheter into either ureter. Had pyelograms been made the untoward results in both cases would have been attributed to double pyelography. Double ureteral catheterization has long been recognized as a very dangerous maneuver in all cases of low renal function no matter what the cause. Consequently, double pyelography should never be done, and single only with great care and fear.

Hugh H. Young (Johns Hopkins Hospital) has always done double pyelograms. In a paper read before the Premier Congrès de La Société Internationale D'Urologie, in 1920, he emphasized the value of the superiority of the gravity method of injections and the routine use of double pyelograms *when there are no contraindications*. In a personal communication, in 1923, he reiterated these views and they are further amplified in his forthcoming book on pyelog-



raphy. Nevertheless, during his frequent absences, unorthodox views have crept into his clinic and even into the textbook of Young and Davis. However, this last is meaningless, as the writing of this paper was suggested by a conversation with Professor Young last summer.

My impression is that in practically all of the large eastern clinics double pyelograms are routinely done and the same is true in Chicago, hence I am surprised to find that in Los Angeles they do single pyelograms and subject the patient to a double session of kidney colic, hospital expenses, et cetera. Any patient that has both kidneys lavaged with 1 per cent silver nitrate, or with 3 per cent mercurochrome, and then has the catheters plugged for ten minutes can tolerate the lavage with 12 per cent sodium iodid (under eighteen inches of gravity pressure) long enough for an x-ray exposure. Furthermore, if 10 cc. of 20 per cent sodium iodid can be injected into his veins for syphilis, his system will not resent a little leakage of 12 per cent sodium iodid between the renal tubules (Fig. 7), beneath the capsule (Fig. 1), beneath the pelvic fascia (*Radiol.*, 1928, x, p. 434, Figs. 6 and 7), or through the renal parenchyma (*Ann. Surg.*, 1926, lxxxv, p. 253, Fig. 3, February, 1926).

Emphasis should be laid upon the point brought out by both Doctors Reinle and Manson that although double pyelography is desirable there are no hard and fast rules, and that every case should be considered individually and so treated.

## INTESTINAL PROTOZOA\*

### THEIR RELATION TO CERTAIN DISEASES—DIAGNOSIS AND TREATMENT

By JOHN V. BARROW, M. D.  
Los Angeles

Discussion by Herbert Gunn, M.D., San Francisco;  
Q. O. Gilbert, M.D., Oakland.

THIS paper will deal briefly with the essentials in laboratory diagnosis. It will discuss the clinical syndromes probably related to the presence of human intestinal protozoa. The treatment in its concrete form will give a résumé of the various drugs, diets, and other means at our disposal for combating these infestations.

The literature of several years ago dismissed as commensals all intestinal protozoa not proven able to penetrate the bowel wall. This unscientific attitude practically prohibited further study or investigation of this problem, and left at once only the *Amoeba histolytica* and the ciliated *Balantidium coli* in the pathogenic group. At this time the allergic reaction of foreign proteins in disease was not being considered. Such reactions as Pottenger points out in tuberculosis, Wertheim in syphilis, and the reactions of intestinal proteins in producing various forms of urticarias, all tend to prove the importance of foreign protein within any part of the digestive tube. The above biochemical reactions would indicate the absorption of substances which, either without further synthesis or without detoxication, account for this physiological depressive behavior. The term *depressive* is not used in the psychological sense. Clinically, depression seems to be brought about by two great forces: first, by the supply to the organ or tissue

of an unusable or poisonous protein, and second, by the failure to supply to the organ or tissue some important component part, the lack of which (vitamin) produces a deficiency disease.

### LITERATURE

We have reviewed practically every significant work on the diagnosis and treatment of protozoa. Cytological authorities are few. One need not remember more than a dozen names to be familiar with those who are and who have been capable of settling a cytological dispute. For the encouragement of the clinician and his technical laboratory workers, technicians of the entire world have acquired their diagnostic standards from not more than half a dozen masters in cytology. These few authorities do not differ in the great essentials; a new species is occasionally a matter of question. We have passed the period when the first seeing of an organism by a novice is sufficient authority for a new name. The *Amoeba dysenteriae* had received seventy-five christenings from various parts of the world before Schaudinn gave it the most popular name of *Amoeba histolytica*. This would seem a discouraging outlook for a critical diagnosis, but when we reflect that it took but few men to work out bacteriological accuracy, and not a tremendous number to set the standards for medical practice, we can readily appreciate that it is as easy to follow and duplicate the work of masters in protozoology as it has been in fields of medical science and art.

The author wishes, therefore, to call your attention to the memorable monographs of Sellards and Walker which occurred in that formative period around 1909 to 1914, and again to the present-day standard bearers, Dr. Charles A. Kofoid of the University of California and Dr. Clifford Dobell of London. There are other workers deserving of full mention whose monographs and diagnostic works as well as those of other authorities can be had in most medical libraries throughout the world and can be obtained from any active medical book dealer.<sup>1</sup>

### ESSENTIALS IN LABORATORY DIAGNOSIS

Doctor Kofoid has raised the very vital problem of the differentiation of protozoan from metazoan cells. We are obliged to leave this solution to cytological experts. Our serious duty is to tabulate careful observations and to submit an abundance of pathological material for research and study. Mistaken diagnoses are not so disastrous clinically as to render diagnosticians silent. Let each worker remember that the illustrations of typical organisms and cysts were probably chosen from among thousands of atypical ones purposely omitted. The completed cyst, true to racial type, is often difficult to find, but one or two essential characteristics of the organism will be found more or less prominent in every specimen. Treatment must not be so dangerous that an occasional mis-

1. Textbooks are not mentioned, in order to avoid controversy as to authorities.

Dobell's "Human Intestinal Protozoa" and Kofoid's "Amoeba in Man" should be in every laboratory.

The Archives of Internal Medicine of April 15, 1928, page 560, is worthy of perusal by all.

\* Read before the General Medicine Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



taken diagnosis can result in harm to our patient. There is so much that is beneficial in the hygienic and physiologic management of these cases that a wrong diagnosis and subsequent treatment may prove beneficial rather than harmful to both the patient and the empiricist.

The virulence of an infection is measured clinically by the effect it produces. Its ability to stir up local or general reaction calls our attention to the invader. Both the quantity and the quality of the toxin play their parts against the resistance and weakness of the host. If the entrance of a toxin into tissues does not allergically stimulate antibodies or protective substances, the host or some part or organ thereof must suffer in vitality. This deficiency is probably subjectively revealed by depression.

Poisonous substances circulated to our endocrine glands tend to lower their function. Failure of glandular function means a lack of all vitamin benefit and the system is soon in a deficiency state—which is the alpha and omega of several of our chronic diseases. By the above reasoning we can understand some of our failures in preventive medicine. Inability to cultivate protozoa or to experiment either physiologically or chemically with their cellular components is as great a handicap as not being able to measure the virulence or foreign protein load in these severe intestinal protozoan infections.

We are therefore forced to utilize the methods of our forefathers. We must observe and, without prejudice or error, set down what we see as facts. When certain clinical findings constantly group themselves about a type of disorder, they constitute a syndrome. Patients heavily and chronically infested with intestinal protozoa present such a constant and unerring set of symptoms, and in the absence of experimental proof we must recognize this syndrome.

#### INFESTATION—WITH INTESTINAL DISTURBANCE

The first clinical sign in these patients is some form of intestinal disturbance, which renders him superconscious of his digestive tract, its movements, or lack thereof. These signs are gas, tenderness, cramps, dizziness, constipation, diarrhea, forgetfulness, and lack of concentration, no interest in life, asthenia of thought, desire and action, together with various complaints of indigestion not substantiated seemingly by fact or physiology. The above condition comes on insidiously, and when the true complaint reaches the physician there is present the metabolic imbalance, the deficiency in vitamin, endocrine dysfunction, and malaise to the point of melancholy. There are aches and pains referable to no anatomical, physiological or psychological causation. Without appetite for food or hope for the future, the patient presents his bewildered "complex" to his often perplexed physician.

#### BLOOD PICTURE

The laboratory emphasizes the picture of chronic deficiency by showing a lowering of the hemoglobin and red and white blood cells. In the

latter the polynuclear or bone-marrow cell suffers most. The eosinophile and the neutrophile leukocyte share this depression. Most textbooks state the contrary, perhaps because authors do not check every quoted statement but copy largely from previous publications, thereby perpetuating medical mistakes. During the acute invasive stage of protozoan infestations polynuclear production is probably stimulated as shown by counts taken at the height of the systemic reaction. Chronic infestation depresses the polynuclear blood-forming organs, as does influenza and typhoid fever. Both eosinophil and neutrophil share this depression, which may be the result of foreign protein poisoning, or the expression of a general metabolic deficiency. Whatever the cause, there is certainly not an eosinophilia.

The above facts must be remembered when the diagnosis or the determination of the need for surgical intervention concerns the appendix, or other abdominal viscera in a protozoan case. The laboratory will further show a deficiency in the body calcium, lost through the feces in the form of fatty acid crystals. No work has ever been done on the chemistry of this interesting physiological behavior.

The above facts and findings are closely associated and are demonstrable almost constantly in chronic metabolic and deficiency diseases, including the severe anemias, diseases of the blood-forming organs, chronic deforming arthritis of Ely's type 2, and the so-called avitaminoses, neurasthenias, etc.

#### PROTOZOAN CARRIERS

The protozoan carrier is in the same status pathogenically as the carrier of diphtheria, typhoid, tuberculosis, syphilis, gonorrhea, leprosy, or any other pathogenic possibility. He should neither be neglected and too little treatment given, nor be abused by overtreatment. He should receive care and instruction both as an individual and as a potential pathogenic menace to his community.

#### GENERAL TREATMENT

Before discussing medicinal treatment it is well to observe that there is no specific diet, climate, temperature, mountain spring, or desert pool to be curatively recommended. Change from one climate to another may prove of lasting benefit. This change may also work in the opposite way, and carriers, who have no knowledge or ill effect from the infestation, may have an exacerbation of the disease, even to the acute form. One finds the infestation present in the asthenic type of patient most often. The heavily infested, chronically, are those most in need of total vitamins and could often be classified as hypoadrenia or avitaminosis cases. Nowhere in medicine is common sense against harsh treatment better directed than in these chronic cases. Good hygienic surroundings with general nourishing food is the most needed. They often have spent money enough on diet lists and starvation advice from cultists to have carried them through their illness comfortably. Many of these chronic cases have been seeking health for



years and naturally fall a prey to all types of charlatans.

All acute cases must have rest in bed, sufficient fluids, bland nutrition, and general systemic support. Milk and gruel mixtures are the fundamental basis of the diet and must be continued entirely through the acute irritative stage. As the chronic stage approaches, soft solids, adequate in nutrition, vitamin, and bulk, must be supplied for proper physiological function. A diet to cure a chronic colitis would often kill the patient by sheer lack of nutrition and vitamins.

The hygienic protection of others must not be omitted. With our modern system of bathroom sanitation, and personal cleanliness, there is little danger to others. The unclean food handler within the city and the unhygienic toilet arrangements of vacation camps probably constitute our greatest menace. Prophylaxis in general is covered by our fight against flies, unclean hands of food handlers, filthy fertilization of vegetable-growing soils, improper disinfection and disposal of excreta in country places. Neglect of proper precautions favor an unsafe water and vegetable supply through human contamination. It is almost a repetition of the hygienic fight against typhoid fever, and the danger to the public is less easily prevented because cysts of protozoa are more resistant than the organisms of typhoid.

#### MEDICAL TREATMENT

The action of drugs employed is similar in acute and chronic cases and their complications. What is said of their method of administration applies equally to all of these conditions. Chronic protozoan infection may not always require treatment, and such should not be administered when the treatment would mitigate against the recovery from some other unrelated disease as pneumonia. However, in many cases the treatment for chronic protozoa possesses so much of alterative benefit that much help is received even in unrelated diseases. As a concrete example it has been shown on the author's service in the General Hospital that, although protozoa are exceedingly rare in typhoid fever patients, the use of emetin is of great benefit in its treatment.

With the discussion of each drug we shall include its toxicity. Reasonably brief directions for its administration together with the specific and alterative action of each remedial agent will be given. Although discussed separately, two or more remedies must often be used simultaneously as is our medical custom.

*Ipecac* and its derivatives deserves first place in the treatment of protozoan diseases. Their alterative action in liver, lung, and intestinal disorders, has long been known. This principle depends on mild, not massive, doses. To clinicians who master its use, ipecac becomes a sort of vegetable iodid, seemingly capable of favorable influence on all diseases metabolic in character. It produces a mild hyperemia of the intestinal mucosa. Probably the same action is present in all mucous surfaces. In one form or another it is probably detrimental to all protozoa. It is particularly harmful to the *Amoeba dysenteriae*. In excessive doses both ipecac

and its active alkaloid exert a powerful depressive action on all cellular structures, expressed particularly in muscle and nerve weakness. Both experiment and experience have placed the rational and reasonable dose of emetin at one-third of a grain. The unpublished records of the author's cases electrocardiographed in the General Hospital by Doctors Berman and Leake failed to show any cardiac variation during or following the intravenous administration of one-third to a grain in the human. However, the dosage on guinea-pigs can easily be pushed to cardiac depression. Protozoan toxin seems to produce the same depression. In patients who already have a very low adrenal and general endocrine dysfunction, emetin may easily be given to the point of danger, and in such patients must be either very guardedly given or withheld completely.

We find the large dosage of from one to three grains of *emetin* recommended and copied from one author to another. This dangerous dose is probably responsible for tragedies in the practice of physicians who must on first administration of a drug follow texts rightfully considered sane, safe, and sound. It is regrettable that systems of medical texts give only a mild caution against such tremendous overdosage. Such overdosage will certainly bring into disrepute a drug which deserves a place with mercury, iodine, and arsenic in their favorable or alterative action in disease. In the endocrine depression it is a mooted question whether all depressive or cellular destructive therapy would not better be discarded and dependence placed on all the factors of hygiene, diet and environment that will build up the body resistance. These hypoadrenia cases are easily injured if not fatally terminated by excessive toxic therapy. In at least two texts we find recommended from ninety to one hundred grains of emetin in a comparatively short course of treatment. Since one grain of emetin is the alkaloid from ninety grains of ipecac, we readily compute that the advised total dosage in this brief treatment ranges from eight thousand to almost eleven thousand grains of ipecac. Such dosage is manifestly preposterous. I am sure we see cases where the administration of one-sixth to one-third grain daily is as spectacular in its benefits as any we could expect or hope for by large dosage.

Rarely does any other complication than mild nausea or muscle tiredness result from the proper use of ipecac and its derivatives. Individual drug idiosyncrasy must, however, be borne in mind.

*Oral administration* of *ipecac* is by the powdered drug in pill or capsule form, and by the alkaloidal salts of bismuth iodid and its competitor, emetin peroxid. All of these must be enteric (salol or keratin) coated to prevent stomach digestion and consequent severe vomiting. In this form the drug is given in large dosage and special care is necessary in both the selection of cases and in the technique of administration. The large dose is given usually late at night following complete rest. It may be preceded, in the highly nervous patient, by paregoric or even by morphin hypodermically. After a day of light, nonresidue,



nutritious diet, at eleven p. m. the patient is given from six to twelve of the five grain pills and left in complete quiet with an ice bag to the epigastrium, and all the natural inducements for sleep. If nausea should develop renew the ice bag and add an ice collar to the neck. Breakfast, if desired, may consist of some hot coffee, or toast and tea, or grapefruit may be gratefully received. Provide well for body fluids. The noon and early evening meals may be chosen by the patient from a light, nonresidue menu. Each succeeding night the dosage is reduced by five grains until the daily dosage of five grains is reached, which may be maintained for ten to fifteen days. The length of the course depends on the reaction of the patient and the results obtained. The above treatment is drastic and should not be administered to patients who have cardiac or other severe asthenia or deficiency where marked nausea or purging might induce collapse. If any sign of muscle weakness supervenes, the treatment must be stopped, during any stage, until all untoward symptoms are gone. Then perhaps some other form of therapy should be substituted. The above caution applies to all ipecac derivatives, no matter how administered.

*Emetin hydrochlorid* is the most serviceable of all the ipecac preparations. The earliest dosage was placed at one-third grain hypodermically or intravenously. The first dose in the acute cases should be given hypodermically. In very acute and robust patients it may be given twice daily, but extreme caution should be used in giving larger doses. There is an ordinary red area about the size of a half-dollar at the point of injection on the following day, whether given subcutaneously or intramuscularly. Frequently the reaction is severe enough to cause a slight erythema studded with a few blisters. This is not an infection and disappears in two or three days with no other treatment than cleanliness. Acute cases should have the one-third grain dose daily intravenously for about ten days or two weeks, inquiry being made daily as to the appearance of weakness from the drug. At the end of two weeks the injection is given on alternate days or twice weekly for another two or three weeks. During the following month or six weeks one-third grain weekly will probably be sufficient. After this a period of rest from emetin should be given for four weeks or even longer. Coincident with this injection may be used the *stovarsol*, *chapparro amargosa*, or even one of the other ipecac preparations. The statement still abounds in the literature that one-half dozen doses of emetin are sufficient to rid the patient of cysts. This contention is comparable to removing freckles by sending a small red-headed boy out of the room. Chronic patients may be up and about so far as the treatment is concerned, but patients with acute dysentery belong in bed always.

*Emetin bismuth iodid* is given best at late bedtime in doses of three grains, with the same caution as above. The periodid in one grain capsules is a competitor of the bismuth salt and is administered in a like manner. Both preparations owe their efficacy to emetin and not to iodine. The

course of these preparations is from six to twelve days. If signs of weakness or heart disturbance occur, the course should end and some other form of therapy should be substituted.

*Alcresta ipecac tablets*, two every two hours or two t. i. d. are very helpful in chronic cases. The *calcresta* capsules, containing also some calcium phosphate, one t. i. d., a. c., are very valuable in the patients who have a tendency to chronic constipation and liver sluggishness. Their action on the liver function is excellent and their action chronically is alterative.

The *fluid extract* of *ipecac* in doses of thirty to one hundred twenty minims in four ounces of water, administered by the duodenal tube is recommended only in hospital and well-nourished patients.

Several *arsenical* preparations have been used but, to avoid confusion, we shall mention only two, viz., *neoarsphenamin* and *stovarsol*. Both preparations have their competitors. *Neoarsphenamin* in usual dosage may be given in six ounces of water as a duodenal or rectal lavage, or intravenously as usually administered, and with the usual precautions. Intravenously it seems more of an alterative than a protozoacide.

*Stovarsol* in four-grain tablets taken one to four daily is very effective in many of the acute dysentery cases. It is a well-suited treatment for *giardia* and probably is quite as effective for *chilomastix* infection. Its use entails much caution against arsenical poisoning expressed often early by itching, dermatitis, and an exacerbation of intestinal symptoms. Asthenic cases with dietary idiosyncrasies are most prone to go wrong under this management. The drug must be administered over short periods only, and then cautiously watched daily.

*Bismuth subnitrate* in teaspoonful doses every two to four hours for days, and even weeks, is strongly recommended by some authors. This treatment is accompanied with a milk diet for weeks. Caution is necessary in cases of mechanically faulty bowels, for the powder may form solid masses difficult or even impossible of expulsion. Manual removal of caked bismuth from the rectum is often necessary.

We cannot agree that Epsom salts or even castor oil have a safe place in severe dysentery.

For years a substance known in Europe as *yatren* and in America as *anayodin* has had considerable mention, more favorable in Germany than elsewhere. It is probably an iodine derivative of hydroxyquinolin. In our opinion its efficacy owes nothing to the iodine radical. This substance is generally given orally in pill form in doses of ten to twenty grains (one to three pills) three times daily after meals. It often increases or causes dysentery. The author is not able to give the large dosage generally recommended. The course lasts about ten or twelve days and then may be lessened and given more or less continuously.

The substance may be given from ampoules subcutaneously or intravenously as emetin is administered. Aside from the iodine content it does



not manifest any toxic action. The pure sulphate of this product is usable with great benefit orally by duodenal and by rectal lavage in from 1:3000 up to 1:500. It is both noncorrosive and nontoxic, having a high disinfectant value.

Chaparro amargosa (bitter bush), one of the simarubaceae, has much value. The extract, fluid extract, and the decoctions of its bark are to be had. The extract in four grain pills is given best after meals. The fluid extract in thirty to sixty minims may be given in hot water three to five times daily. It is slightly constipating and tends to produce nausea from its severe bitterness. A good decoction is made by combining the bark, the rind of the pomegranate fruit, and gum acacia, of each an ounce to a quart of water. Boil down to one pint and drink the entire amount over a period of twelve hours. Repeat as often as desirable—one to three times weekly. It is very disagreeable but nontoxic and truly helpful, and often relieves stubborn dysentery.

Our results with *mercurochrome* have not encouraged us. Salivation occurs too readily to allow its general use.

#### SURGICAL TREATMENT

Having mentioned all the chief drugs at our disposal for treatment, we deem a few words about mechanical therapy necessary. In all cases having adhesions, tumors, malformations, diverticula, etc., proper surgery is often necessary. This diagnosis must be carefully worked out and concurred in by careful observation and consultation. Cecostomy, appendicostomy, and sigmoidostomy properly done save life, but entail much risk as to time of election. The thermal treatment of Rivas seems to offer much promise, but requires careful control.

The treatment of complications is but the application of all of the above principles and drugs as modified by general pathology. Dysentery, obstruction, malnutrition, abscess of the liver and the other viscera, epilepsy, hypoadrenia, avitaminosis, arthritis deformans and other metabolic insufficiencies, iritis, dermatitis, colitis, neuritis, and others will often be complicated by the additional load of protozoa. With our meager knowledge of the chemical stuff that cells have offered to them for metabolism, with our ignorance of protozoan chemistry, with such reactions as allergy still a mystery, we must continue to observe and to tabulate our findings, doing so with full appreciation that many of our interpretations will often be wrong. However, with even a small showing of success we shall be imbued with true courage to bear criticism, as we dare for humanity.

Since to the author belongs the credit for the original conception that arthritis of Ely's type 2 is closely associated with colitis of protozoan origin,<sup>2</sup> I desire to give a brief outline of the medical treatment concerned in its management.

If the case is heavily infested, having the usual symptoms of protozoiasis, it should be treated ex-

actly as any other protozoan case. The chronic constipation is very frequently cared for by the use of calcresta capsules to which is added all the methods of colonic lavage at our command. The roentgenological proof of iliac or cecal stasis, chronic appendix, chronic colitis, diverticulitis, or adhesions about the colon, is very essential. Surgery to restore normal physiological function may be required.

In chronic cases where no protozoa are found but where their secondary effects are shown by the malfunction of the intestines, improper absorption of toxic bodies and the invasion of secondary bacteria, treatment must be more chronic and more mild. It is in these cases that the alterative drugs, vitamins, nutrition, and general hygiene are most productive of good. Their course is so chronic that it is difficult for patients to continue one regimen long enough to produce results. The use of emetin seems sometimes to increase the patient's general sensibilities. Any pain or discomfort is more keenly felt. Often they show such ill humor and lack of appreciation that one wonders that any physician can be so magnanimous or so stupid as to offer himself as a target for such complaints. Physicians taking these patients must either develop compassion and contriteness of heart or be driven to madness by what may seem a hopeless task.

In cases with pain, swelling, deformity, and even fixation, we have recently used emetin directly into and about these painful spots, deformities and so-called ankyloses. We inject one-third to one-sixth of a grain and, whenever possible, follow it with diathermy for dispersing the drug. This treatment may be given two or three times weekly. At the point of injection there is the usual redness and tenderness which disappears within from three to seven days. We can truly recommend this form of therapy.

It is an interesting observation that other protozoacides do not seem to exercise this beneficial action to such a marked degree. The percentage of good results in arthritis deformans is not flatteringly high by any method. This method of treatment does not supplant any other form of therapy and even may be used coincidentally with anything that is beneficial to the patient. It is a valuable adjunct in the treatment of arthritis of this type and gives an added hope to both the patient and the physician in a grateful percentage of these neglected and often hopeless cases.

#### SUMMARY

In summation, the essential points we desire to express are:

1. Diet is not curative. Nutrition and function are all-important.
2. The drugs of standard recognizable use are headed by ipecac and its derivatives, stovarsol, neoarsphenamin, bismuth, chaparro amargosa, quinin, yatren, anayodin, and similar derivatives.
3. These infestations are chronic, accompanying and probably causing many secondary troubles

2. "The Amoeba as the Cause of the Second Great Type of Arthritis," Ely, Leonard, et al (California State Medical Journal, February, 1922).



as arthritis deformans, neuritis, iritis, endocrine disfunction, dermatitis, etc.

4. Because of the patient's naturally lowered vitality, overtreatment is decried.

5. Treatment must be persistent and sometimes as chronic as the disease itself.

6. Clinically, results of treatment are very good.

We wish to thank Dr. E. L. Armstrong and other co-workers for their helpful suggestions in the preparation of this paper.

1930 Wilshire Boulevard.

#### DISCUSSION

HERBERT GUNN, M.D. (350 Post Street, San Francisco).—There has been some controversy for a number of years regarding the pathogenicity of some of the intestinal protozoa observed in man, but this is the most novel exposition of the subject that has come to my attention.

The formulation of a syndrome that is applicable alike to the formidable *E. histolytica* and the harmless *Trichomonas intestinalis* is quite unique. *Entameba histolytica* is accepted as a pathogenic organism and is known to produce very definite pathological lesions with symptoms usually referable to the intestinal tract.

Often there are symptoms of a more complex character impossible to explain by the known pathology, and it is possible that these are, as Doctor Barrows suggests, of protein origin.

*Entameba coli* is very generally considered to be a harmless ameba, and I believe, in a broad sense, this view is correct. It certainly never produces the serious symptoms seen in *histolytica* infections. I have seen a few patients suffering from mild intestinal disturbance or obscure symptoms referable to other parts who, after being cleared of an ameba coli infection, appeared to be improved. However, I have seen a much larger number of such patients show no benefit from the treatment when cleared of their ameba.

The other commonly found amebas—the *Endolimax nana* and *Iodameba butschlii* are quite generally considered harmless, and rightly so I believe.

Of the commonly encountered flagellates the *Giardia intestinalis*, or *Lambli*a as it was formerly called, has received the most attention and been most seriously accused of being pathogenic. The parasite is certainly a most formidable looking animal under the microscope, and it is very liable to impress the observer that it is dangerous.

I have carefully observed a number of carriers of these flagellates, some of them over a number of years, and I have yet to see the case where I could definitely ascribe symptoms to their presence.

The *Chilomastix mesnili* and the *Trichomonas intestinalis* are generally accepted as harmless.

Personally I have never seen symptoms that could definitely be shown to be produced by them.

There are several difficulties which complicate studies of the flagellates—first of which is due to the fact that the cysts of the *chilomastix* and *giardia* may appear but periodically, and the *trichomonas* being found only in a liquid stool. It becomes necessary, therefore, to carry on quite extensive examinations before being certain that the parasite is really gone. In the second place there is no drug that I know of that will clear the intestinal tract of any of the flagellates.

I quite agree with what Doctor Barrows states as to the efficiency of such drugs as emetin hydrochlorid, emetin bismuth iodid, stovarsol, neoarsphenamin, and anayodin, but only in amebic cases. In my experience none of these drugs have any effect on the flagellates, as far as their removal is concerned. I have used some of these drugs quite extensively in the treatment of

amebiasis, but have never observed any specific effect on any of the flagellates which not infrequently were present.

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Q. O. GILBERT, M.D. (1904 Franklin Street, Oakland).—The section is favored in this paper by Doctor Barrows, who has had such an extensive experience in treating patients with protozoan infestations. There are many clinical manifestations observed in these patients which as yet require speculation to explain. We must exercise charity if we do not agree and give deference to those of larger experiences. When we have more physiological and chemical data relative to the disorders of the digestive functions in patients with these types of intrinsic colitis our viewpoints will materially change.

I would like to call attention to the gastro-intestinal hypermotility in patients having amebic colitis. Frequent observations have shown patients complaining of intestinal discomfort, "constipation" and mild "toxic" symptoms, where food is evacuated soon after the twelve-hour period, and often at twenty-four hours not sufficient barium remains in the large bowel to cast a definite shadow. This has been of sufficient importance to suggest that when it occurs the patient should have a stool examination; ameba are frequently found. Discussions of this sort should surely suggest that we have more stools examined by competent laboratory observers. Sometimes smears from a proctoscopic examination are positive when stool search is negative. Many patients thus examined might be made comfortable after they have not been cured by cholecystectomies and appendectomies, rectal ulcer treatments and hemorrhoid operations. We believe that oftentimes the gall bladder and the appendix become involved, due to the long-standing colitis, possibly through the portal circulation. Operations are necessary, but careful microscopic examinations are also necessary to obtain a more complete pathological picture.

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Eosinophilia.—1. An eosinophilia of 5 per cent or more occurred in three hundred patients among 5500 general medical cases, all of whom had complete blood counts and stool examinations. The small number of dermatologic cases seen and the entire absence of scarlet fever patients prevent this series from being wholly representative. Cases of obvious blood diseases were excluded.

2. Of the three hundred cases of eosinophilia in this series, 10 per cent occurred in parasitic infestation; 13 per cent in rheumatic fever; 13 per cent in chronic pulmonary disease (chronic bronchitis, emphysema, asthma); 10 per cent in the chronic nephritis—general arteriosclerotic group. In fully 40 per cent the eosinophilia occurred in isolated cases of various conditions and had no diagnostic significance.

It is suggested from this series that eosinophilia may be a part of the phenomenon of allergy.—Irvine H. Page, M.D., *J. Laboratory and Clinical M.*

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Dental Clinics of Greater New York.—In one district alone of Greater New York there are said to be 20,000 school children whose teeth have been examined but who are waiting for the needed dental care. The dental services available at moderate cost for children and adults in that city have been found to be inadequate, although the city boasts 516 dental chairs in actual use in 152 public and private clinics. One reason for this inadequacy is that the equipment has been used less than half the time because of lack of available funds to pay dentists. The New York Tuberculosis and Health Association is now recommending the full use of existing facilities, more clinics for the districts outside Manhattan where most of the present clinics are concentrated, and coördinated development of adequate dental-clinic facilities especially for children two to sixteen years of age.—*U. S. Department of Labor.*



# SURGICAL OPERATIONS IN PULMONARY TUBERCULOSIS\*

WITH CASE REPORTS

By WILLIAM H. THEARLE, M. D.  
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THE surgical procedures recognized as valuable aids in the treatment of pulmonary tuberculosis are phrenectomy and the pneumolyses (partial measures), artificial pneumothorax and extrapleural thoracoplasty, which are classed as complete procedures as they are usually employed to induce compression of one lung. The partial operations are valuable chiefly as supplementary measures to air or surgical collapse.

## OPERATION PROCEDURES

*Simple section or crushing of the phrenic nerve* as ingeniously devised by Yates (*phrenemphraxis*) produces temporary paralysis of the corresponding diaphragm, which may be indicated as an improving measure with supportive treatment especially in early cases, but for advanced phthisis phrenic neurectomy (the exeresis operation of Felix) is more commonly performed and the procedure of choice. My experience in 174 phrenectomies is that this operation is the primarily indicated surgical measure for unilateral lesions predominantly basal, and that it can be effectively employed before every complete thoracoplasty, as well as frequently in conjunction with pneumothorax therapy. The experience of all workers is that it rarely produces a cure *per se*, yet I believe it is the stimulus added to sanatorium treatment necessary to start some early cases on the road to recovery.

By *pneumolysis* we aim to free the diseased lung from the thoracic wall, which may be accomplished either intra- or extrapleurally. The intrapleural method is indicated in selected cases of pneumothorax to sever narrow adhesive bands (when few in number), which prevent adequate collapse of cavities. The closed method of Jacobaeus with cautery division of such bands through an operating thoracoscope has supplanted the previously employed open procedure, which open procedure is associated with alarming symptoms due to free incision of the pleural cavity.

The extrapleural operation is advocated to obliterate cavitation (usually apical and termed by Tuffier "*apicolysis*") by peeling the lung with both layers of the pleura from the chest wall through a small thoracotomy. This procedure is theoretically ideal and permits excellent operative collapse, but unfortunately none of the various filling schemes so far advanced maintain permanent compression. My limited experience with fifteen apicolyses is that Baer's paraffin plug is the best of these methods.

*Artificial pneumothorax* (similar in principle to thoracoplasty) is the most commonly used form of compression in pulmonary tuberculosis, but being practiced almost exclusively by the

phthisiologist it does not thus become a strictly surgical problem except in cases of failure or the advent of pleural complications, and will therefore not be discussed in this paper from a surgical point of view.

*Extrapleural thoracoplasty* is not only conspicuous among the marked advances in the therapy of pulmonary tuberculosis during the last twenty years, but as Sauerbruch<sup>1</sup> recently states it represents the most significant advance of surgery in this period. It is rather surprising though with the increasing number of articles that have recently appeared in medical literature, and the widespread enthusiasm now being manifested in the surgical treatment of pulmonary tuberculosis, that the general practitioner has so little knowledge of thoracoplasty, and that some specialists still consider surgical collapse only as a procedure of last resort in late phthisis.

The essential surgery of this operation, standardized and largely developed by Sauerbruch,<sup>1</sup> is the extrapleural resection close to the vertebral transverse processes of segments of all the ribs (except the twelfth) on one side. The features of paramount importance which will usually determine successful results in suitable cases are (a) resection of the first rib in all cases, and (b) contiguity of the costal resections to the transverse processes.

The consensus of experience at the present time is for standardization of the two-stage procedure, which is less shocking and very much safer than the earlier formidable single-stage operation. Increasing statistics also favor general anesthesia with nitrous oxid or ethylene, supplemented at times with a moderate amount of novocain, rather than the use of a local anesthetic alone.

Considerable discussion has arisen during the past several years concerning the precedence of *resection in the two-stage operation*, that is, whether the standard procedure of primary lower rib resection as steadfastly advocated by Sauerbruch<sup>1</sup> should be followed, or the reversed method of first resecting the upper ribs after preliminary phrenicotomy, that was first suggested by Alexander,<sup>2</sup> and which is practiced and strongly championed by Lilienthal<sup>3</sup> as the logical sequence in two-stage thoracoplasty.

## CHOICE OF OPERATIVE PROCEDURES

Briefly, the advocates of primary upper rib resection argue that in so resecting the incidence of lower lobe complications (particularly aspiration pneumonia due to spilling from cavities in the upper lobe) is materially lessened, as there is no interference with the lower thoracic and abdominal muscles which are chiefly responsible for the act of cough and expectoration, while the primary phrenicotomy makes coughing easier and more productive as well as adding some compression of the lower lobe; also, the advanced lesions, especially cavities, are more commonly in the upper lobe and apical region, and an immediate beneficent influence is thus exerted on the main source of toxemia. Sauerbruch,<sup>1</sup> on the other hand, with his vast experience of over nine hundred thoraco-

\* Read before the Laennec and Trudeau Societies of California at a symposium in San Francisco, January 29, 1928.



plasties has repeatedly warned of the danger of lower lobe aspiration, when the upper lobe is first collapsed in thoracoplasty.

The contentions of Lilienthal<sup>3</sup> are theoretically logical, but I am not familiar with his results, nor of any series of cases yet reported that in practice substantiate the superiority of this method. My experience with this order of resection is limited to eighteen cases with four basal complications, while lower lobe pneumonia has occurred in eight of the other cases (124) of my series operation by Sauerbruch's<sup>1</sup> procedure. Brunner reports twelve lower lobe pneumonias in ninety-nine thoracoplasties at the Munich clinic with the Sauerbruch<sup>1</sup> technique and four basal aspirations in five cases collapsed from above downward, while Archibald<sup>4</sup> has had only two pneumonias in seventy-eight complete thoracoplasties performed from below upward.

Statistics so far published do not justify any radical change in the standard order of resection, and the vast majority of workers in this field still follow the leadership of Sauerbruch<sup>1</sup> in performing thoracoplasty from below upward, which has also in my experience been the safer method of procedure except in cases complicated by pyopneumothorax.

Worthy of special notation on this subject are the illuminating experimental studies of Archibald and Brown<sup>5</sup> on the action of cough upon material in the tracheobronchial tract controlled by lipiodal injections, wherein they conclude that cough may tend to drive or force fluid substances deeper into the pulmonary tree, and that it is incapable of a like action upon a heavier substance, such as thick tenacious sputum. These observations are at variance with the prevailing impressions that early cough and expectoration should be encouraged after operation to lessen the chances of aspiration and dissemination of accumulated sputum to other portions of the lungs, but they undoubtedly explain some of the aspirations that occur after thoracoplasty irrespective of the order of resection.

No fixed rule can be followed as to the length of rib resections, as such must be determined in each case by a consideration of various factors, namely: the size of the chest; the location, extent and size of cavities; the degree of pulmonary fibrosis; the thickness of the pleura (especially prominent in old pneumothoraces when effusions have occurred); the fixation of the mediastinum; and lastly but doubtless the most important, practical observation during operation of the degree that the unsupported chest falls in as successive ribs are resected.

The importance of adequate collapse of cavities is obvious, but one can err in performing too wide posterior resections to obtain obliteration of large cavities, as the delayed and at times non-union of sectioned ribs will vitiate the ultimately

good effects of thoracoplasty that are due to surgical fixation of the operated side.

#### OBJECTS OF THE OPERATIONS

The aim of operation is relief of intrapulmonary tension and compression of the lung which permits approximation of the walls of cavities, and drainage of the diseased lung by forcing its fluid and semifluid contents into the bronchi, from which they are expelled by coughing; and marked curtailment of respiratory movements that ensues early from the costal resections and later from surgical rigidity of the hemithorax which places the diseased lung at rest—the requisite state for healing in all tuberculosis. The conditions in the compressed lung that are believed to be responsible for the cessation of toxemia and the development of scar with healing are cavity obliteration, atelectasis, lymph and venous stasis.

#### SELECTION OF PROPER CASES

The selection of proper cases for thoracoplasty is generally regarded as the most important and at times the most difficult phase of this problem. The fundamental requirement for suitability is that the disease be in a chronic stage with involvement chiefly of one lung, and that the lesions are predominantly of the productive type. The usual age limit is eighteen to forty-five years. Some activity (though not marked) is permissible at the opposite apex, as tuberculosis sufficiently advanced to require thoracoplasty is rarely confined to one lung, but operation should never be considered when active lesions are present in either the hilus or lower lobe of the other lung.

Sauerbruch<sup>1</sup> first called attention to the importance of the fibrotic or productive type of tuberculosis in surgical collapse, which is really the index of a patient's resistance to his disease, and Archibald<sup>4</sup> has emphasized its full import in thoracoplasty with the impressive warning, "Do not operate if the trachea is in the midline." Although many of my cases have not possessed the tracheal deviation that he demands for operation, yet I fully agree with him as to its vital importance, and further believe that its routine adoption as an operative requirement will result not only in a more uniform selection of cases, but also materially reduce the percentage of late tuberculous extensions which some observers have reported as high as 30 per cent after thoracoplasty.

The external manifestation of pulmonary fibrosis with scar contraction is the contracted chest that is often seen in old cases of phthisis, the true extent of which is accurately defined by x-ray studies by the degree of displacement of the thoracic structures (heart, trachea, mediastinum, and diaphragm). Experience has definitely proven that the exudative type of lesions is associated with poor resistance and a correspondingly unfavorable prognosis. These two main types of the disease usually coexist in a lung under consideration for collapse, but it is obviously necessary that the productive lesions predominate, for operation to be indicated.

Deserving of particular emphasis in consideration of patients for surgical collapse is the warn-





Fig. 1—Illustrates the adhesive plaster dressing used after thoracoplasty to support and maintain compression of the operated half of chest till the resected side becomes fixed by the formation of scar tissue and bony union between ribs. The gauze-rolls under the adhesive aid in approximation of the resected ends, and by filling the subclavicular and axillary depressions are of definite value in securing collapse of the upper portion of the lung. The thickness of these rolls is determined in each case by the stature and degree of collapse desired. (Patient here shown is Case 1.)

ing never to advise operation in far advanced cases that are manifestly poor risks on the sole assumption that surgery offers them their "only chance." This erroneous attitude actuated my first attempts in thoracoplasty, and decidedly unfavorable results have conclusively proven the folly of such sad experiences. The unjust criticism and disfavor of thoracoplasty in the past has been largely due to operation in decidedly unsuitable cases, which has similarly prevented many good risks from accepting operation in the desirable earlier stage of the disease.

Our next consideration is whether the heart is equal to the strain of a thoracoplasty. Patients with cavitation of any extent and duration invariably develop some myocardial impairment, which may be of sufficient severity to forbid operation even when other indications are fulfilled. Our best criterion of the existent degree of myocarditis is furnished by the electrocardiogram, but clinically patients with a consistently fast pulse (110 to 120) for several months and systolic pressure near 100 are always poor thoracoplasty risks.

It is needless to state that a complete physical survey must reveal no serious disease elsewhere in the body, although tuberculous peritonitis (unless advanced) and laryngitis are not considered contraindications to operation.

The test phrenicotomy exploited by Sauerbruch<sup>1</sup> may be resorted to when doubt exists as to the status of lesions in the better lung. The prevailing practice to date has been that thoracoplasty should not be performed till the simpler and safer artificial pneumothorax has been found impracticable or fails to achieve satisfactory results after a reasonable trial. The tragic occurrence of spontaneous pneumothorax with purulent effusion (mixed infection) makes thoracoplasty

mandatory if the patient is suitable for operation.

#### PRE- AND POSTOPERATIVE CARE

Preoperative measures of value are digitalization of the heart, skin preparation the preceding day, and emptying cavities of secretions just before operation. The postoperative treatment is largely symptomatic, with close attention to supportive measures to sustain the patient's strength and lessen the incidence of complications.

Various means have been advocated to combat the paradoxical respiration of the unsupported hemithorax, and at the same time maintain some compression of the lung; such has only been satisfactorily accomplished in my experience by adhesive plaster horizontally applied on the operated side over gauze pads.

The prevailing custom is to encourage early cough and expectoration soon after operation in the belief that the dangers of aspiration and dissemination of retained sputum to other portions of the lungs are thus reduced, but recent lipiodol studies on cough cast doubt upon the validity of this assumption and the wisdom of energetic coughing during the first two days after thoracoplasty.

Morphin is employed by most surgeons for the relief of postoperative pain, but my policy is to limit its use to the minimum and to depend mostly on other drugs for the alleviation of pain. My observation has been that morphin in pain-relieving doses when given in the first forty-eight hours usually portends more early toxemia with retention of sputum and disturbances of the gastrointestinal tract.

Improvement usually occurs promptly in the vast majority of suitable cases when toxemia is stopped by adequate pulmonary collapse, but it requires months before lesions become firmly healed and the disease cured. It is therefore vitally important for patients thoroughly to understand that surgical collapse is only a mechanical procedure, and they must still observe modern sanatorium measures for some time (preferably at least a year) to derive the maximum benefits of operation, and always some restrictions in their mode of living in order to maintain a state of comparative good health.

#### SUPPLEMENTAL SURGERY

Supplementary surgical procedures are necessary in some cases to obliterate cavitation persisting after complete thoracoplasty when nature fails to heal such in a reasonable time. Sauerbruch<sup>1</sup> reports this necessity in 14 per cent of his cases, Law in 8 per cent, and mine so far is 6 per cent. The factors mostly responsible for this inadequate collapse are failure to remove sufficient



lengths of ribs, long posterior rib ends because resections were not close enough to the transverse processes, or the inability of posterior thoracoplasty at times to collapse a large solitary cavity.

The common location of such cavitation being apical, the operation of choice especially on the Continent has been anterior apicolysis, but as this procedure often fails to maintain collapse, more satisfactory results will usually be obtained by further costectomies with the three following alternatives: (1) Invasion of the old operative field with removal of further ribs and the regenerations formed between previously divided ribs. This is not only a difficult and shocking operation, but the scar tissue formed in this region does not permit further collapse as readily as after the original operation. (2) Parasternal resection (including cartilages) early after thoracoplasty when it is clinically apparent that our collapse is inadequate; or (3) The removal through an axillary incision of further sections of the upper ribs from the divided ends left by the posterior thoracoplasty forward and including the cartilages (if necessary) as advised by Welles.<sup>6</sup>

#### RESULTS

Early mortality is relatively rare due to shock *per se* or pulmonary hemorrhage; the most frequent cause is cardiac failure from mediastinal flutter superimposed on an existent myocarditis. This flutter occurs in patients with little pleural thickening and slight or no mediastinal fixation in direct proportion to the width and number of ribs removed at an operation, and its occurrence in varying degrees in a one-stage thoracoplasty has been the factor that has been responsible for adoption of the two or more stage procedures now in vogue. Next in frequency toward the end of the first week is aspiration or tuberculous pneumonia (usually the bronchopneumonic type), and occasionally wound infections. Later deaths within the first three months, as well as the late mortality months after operation, are mostly due to tuberculous reactivations and extensions in the lungs, less often from the disease elsewhere in the body. Reports from various surgeons show an average operative mortality around 4 per cent which increases to 12 per cent within the first six weeks, while late mortality has been reported as high as 39 per cent.

Results so far obtained by thoracoplasty from a study of statistics are, roughly, one-third of patients cured and an equal number improved. Sauerbruch<sup>1</sup> though in a recent article states that healing may be expected in 60 to 70 per cent of suitable cases with improvement in about 20 per cent more. My figures in a series of 142 patients operated since the fall of 1921 are 35 per cent cured and 31 per cent improved, with a mortality of 14.8 per cent. The operative mortality in early suitable cases is 3.8 per cent.

The mortality following thoracoplasty is admittedly still high, yet such is but a natural

sequence with late major surgery in chronically ill patients who are depleted by the ravages of a disease like tuberculosis. When we stop to consider though that nearly all of these patients are doomed without surgical relief, all will agree that the results of thoracoplasty are decidedly gratifying and deserving of more extensive application. The lesson impressively learned from our experience with thoracoplasty to date is that results will only be materially improved when specialists adopt a more progressive attitude in the treatment of pulmonary tuberculosis like that advocated by Philip King Brown<sup>7</sup> in a recent interesting article on this subject, wherein he concludes, "Suffice it to say that if a patient with a largely unilateral process has shown no definite encouraging improvement in clinical signs and x-ray outlines, under the most exacting rest in bed within two to three months, a consideration of surgical interference is in order (phrenicotomy, pneumothorax or thoracoplasty), and in all cases where cavities of any size are demonstrated by x-ray plates, active surgical interference should be kept in mind from the start."

#### CASE REPORTS

CASE 1.—Male, age twenty-six, tuberculosis one year; active lesions both lobes left lung with five centimeter cavity of upper lobe; inactive right upper lobe. Frequent hemoptysis and small hemorrhages. Sputum 45 cc. daily. November 24, 1924, left phrenectomy; December 15, 1924 and January 2, 1925, left paravertebral thoracoplasty. Cough and sputum disappeared in four months with gain of sixteen pounds in weight. Lung well collapsed; patient clinically cured.

CASE 2.—Male, age thirty-eight, tuberculosis three years; active lesions both lobes left lung with marked cavitation of upper lobe, inactive right upper lobe. Sputum 120 cc. daily. September 8, 1924, left thoracoplasty, reversed order of resection (ribs one to six), paravertebral anesthesia. Aspiration pneumonia right lower lobe seventh day; sputum became very foul and increased to 240-300 cc. daily. Patient seriously ill for three weeks with high temperature, dyspnea, cyanosis and rapid pulse, then some improvement, but it was six months before temperature remained normal; considerable intestinal symptoms developed during this period, which markedly improved under heliotherapy. Right lung inactive fall 1925, and patient much improved; sputum now 60 cc. daily. November 10, 1925, left phrenic neurectomy for activity left base. Patient ambulatory, with gain of ten pounds in weight and condition improved, but he has just consented to completion of left thoracoplasty for remaining activity left lung, although such was recommended two years ago.

CASE 3.—Female, age thirty, tuberculosis five years; active lesions both lobes left lung with apical cavity, right lung inactive. Sputum 60 cc. daily. Anemia. Tuberculosis left hip in childhood, with shortening. April 9 and 29, 1927, left thoracoplasty. Moderate mediastinal flutter with dyspnea after first stage, but marked dyspnea with cyanosis occurred after the second stage, and tuberculosis extension of right lower lobe (bronchopneumonia) developed May 4. Patient critically ill for next week, then temperature became normal (lysis), and she slowly improved after third week. X-ray and clinically, January 1928, right lung clear; patient is at present improved, gained nine pounds in weight, sputum about 30 cc. daily, mostly mucoid, but still positive. This patient does not co-operate to the necessary extent—is too active—which has retarded her improvement to date.

CASE 4.—Male, age twenty-four, tuberculosis eighteen months; active lesions both left lobes with two large cavities upper half left lung, right upper lobe



inactive. Sputum 200 cc. daily. General condition good. October 8 and 18, 1927, left thoracoplasty; moderate mediastinal flutter after first operation, otherwise convalescence normal. Improvement has been prompt and progressive; sputum for past nine months mucoid, about 4 cc. daily and negative for tuberculosis; has gained twenty pounds in weight. Lesions apparently arrested.

CASE 5.—Male, age thirty-five, tuberculosis five years; far advanced lesions of left lung with large cavity upper lobe, and slight activity right apex. Frequent cough with 160 cc. sputum daily. Tuberculous peritonitis of moderate degree. General condition otherwise good. November 24, 1925, left phrenectomy; December 3 and 20, 1925, left thoracoplasty. Convalescence uneventful except for 104 degrees temperature for three days after second stage with moderate dyspnea; six weeks later complained of considerable pain right lower chest, but no friction found on examinations. In April 1926, right pleural effusion present and 1200 cc. clear amber fluid aspirated; improvement more marked next few weeks with gain in weight, and he became semiambulant. He still had some abdominal distress with pain at times, which became worse toward July when it was found he had some ascites, although fluid never became sufficient to warrant tapping. Alpine light exposure began which has since been continued, with disappearance of all abdominal symptoms. He now eats all kinds of food, appetite excellent, is ambulatory, slight cough with scant sputum, which has been negative for eight months. Weight up to normal, improvement marked past nine months, and lesions are apparently arrested.

CASE 6.—Female, age thirty, tuberculosis five years; active lesions both lobes; left lung with multiple small cavities, and slight activity right apex. Frequent cough, with about 120 cc. of purulent sputum daily. Bed patient past two years. September 1923, left thoracoplasty (Brauer resection), one-stage. Convalescence stormy for a week, then began to improve, which has continued; no cough or sputum after nine months sanatorium treatment. Has gained fifteen pounds in weight. Married in 1925. Clinically cured.

CASE 7.—Female, age twenty-four, tuberculosis three years; active lesions both lobes left lung with cavitation, right lung inactive. Sputum 60 cc. daily. General condition good. May 20 and June 4, 1925, left thoracoplasty (twelve ribs). Convalescence normal with progressive improvement. No cough or sputum after six months; twelve pounds gain in weight, has been doing light work past eight months. Disease apparently cured.

CASE 8.—Female, age twenty-six, tuberculosis three and one-half years; active lesions all lobes right lung with multiple cavities of upper lobes, left lung sound. Pneumothorax therapy for nine months with definite improvement, but such failed to collapse some cavities at hilus and apical region. Sputum reduced 50 per cent by air compression (150 to 75 cc.). May 15 and June 2, 1925, right thoracoplasty; prompt improvement which has been progressive; her sputum became negative for tuberculosis in six months and disappeared in a year. Ambulatory, doing light work, gained eleven pounds in weight. Disease apparently cured.

CASE 9.—Male, age thirty, tuberculosis two and one-half years; active lesions both lobes left lung with multiple cavitation; right upper inactive. Sputum 120 cc. daily, very purulent; slight abdominal symptoms (tuberculous enteritis). October 3 and 17, 1925, left thoracoplasty, moderate mediastinal flutter after first stage. Heliotherapy used for intestinal condition. No cough or sputum after a year nor any abdominal symptoms. Gain in weight, fifteen pounds. Clinically lesions cured.

CASE 10.—Male, age twenty-six, tuberculosis four years; active lesions both lobes left lung with small cavitation upper lobe, and 50 per cent compression of the lower lobe by artificial pneumothorax (administered past six months with some improvement), right lung sound. Sputum 50 cc. daily; moderate tubercu-

lous peritonitis, which was later treated with heliotherapy. February 5 and 26, 1925, left thoracoplasty—considerable abdominal symptoms for two months which retarded convalescence, then began to improve. Cough and sputum at present slight; sputum though mucoid is still positive for tuberculosis. He has gained ten pounds in weight and has been markedly improved.

CASE 11.—Male, age twenty-six, tuberculosis three years; active lesions both lobes left lung with multiple cavities, and large cavity comprising most of the upper lobe; slight activity right upper lobe with very small apical cavity. Sputum 240 cc. daily. Dyspnea; myocarditis. Patient very thin and much underweight (ninety-eight pounds at operation). A far advanced case and poor surgical risk. September 16, 1925, left phrenectomy; September 23, October 5 and 21, left thoracoplasty; convalescence stormy on account of heart. Improvement marked after a month, and his weight increased to 122 pounds in six months. He still has slight morning cough and sputum, although such is negative for tuberculosis at last report (six months ago). Improvement marked, but patient has not yet reached stage of cure even though he has been doing light work for some months.

CASE 12.—Female, age thirty-one, tuberculosis three years; active lesions right upper and middle lobes with moderate size cavity upper lobe, left lung O. K. Sputum 60 cc. daily. Marked improvement from satisfactory pneumothorax in 1923 and 1924 till March, when spontaneous perforation with pyopneumothorax (mixed infection) occurred. April 1, 1924, right thoracoplasty (single stage, Brauer type of resection); pleural cavity aspirated and April 10, 1924, drainage thoracotomy necessary. Condition critical for two weeks; supportive measures with infusions and blood transfusions, which caused a little improvement, but it was not till 1925 that further collapse procedures were justified, when pleural cavity was obliterated by graded parasternal and axillary resections. Weight now 120 pounds, with no cough or sputum for two years. Extrapleural sinus due to infected rib end closed June, 1926. Tuberculosis cured; plastic operation will improve appearance of chest, but patient justly feels that she has had enough surgery for some time.

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The Play Street Invades Tokyo.—Traffic is giving way to children in Tokyo. How far the "Flowery Kingdom" has accepted the motor car and sheaved the jinrikisha is tragically indicated by the 2500 child victims of street accidents in that city last year. And now the City Fathers of Tokyo have accepted an even more modern development than the motor car and have set apart sections of two hundred streets for children to play in after school hours, traffic being stopped on these streets from 1 to 5 p. m. The city officials are also endeavoring to establish more playgrounds, but they have been balked in their purpose by the difficulty of acquiring proper sites.—*U. S. Department of Labor*.



## ORGANIZATION NEEDS OF WESTERN INDUSTRIAL HYGIENE\*

By W. P. SHEPARD, M. D.  
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DISCUSSION by C. O. Sappington, M. D., Oakland; Russell A. Jewett, M. D., Los Angeles; Philip King Brown, M. D. San Francisco.

FROM the opportunities I have had to confer with industrial physicians from Denver west, and from Seattle south, it seems that western industrial hygiene is in a stage of extremely rapid development. From an infant in arms fifteen years ago, it has grown to a fine husky youth. This youth is rather ungainly. His arms and legs are long, his hands too large, his feet always in the way. I am wondering if it is not about time for this fine young chap to be dressed in long trousers, and for his physical needs to be met in such a way that he will grow into fine adulthood and become even stronger and bigger and better than his eastern brothers.

By industrial hygiene I mean the science of preventive medicine as applied to industry. The problems of industrial hygiene are rather unique. They are no more than touched upon by any specialty in the practice of medicine and they are not of more than general interest to the public health man. Therefore it is apparently up to the industrial hygienist to work out his own salvation. That he has been doing this is evidenced by the remarkable advances made in the field of research and by the recent reduction of industrial health hazards. This comparative isolation, however, makes it all the more necessary for industrial hygienists to get together and to adopt a little of the principle "one for all and all for one."

Industrial physicians throughout the west are facing much the same problems. They are solving some of these with ingenuity, attempting but failing to solve others, and completely overlooking still others. For example:

### NEED OF STANDARDIZATION

There are almost as many types of entrance examinations for prospective employees as there are industries in the west. There are many industries which have no entrance examinations at all. This, in spite of the fact that practically all are required to carry industrial compensation insurance, the premiums for which are based upon the actual experience of that individual industry. With the stabilization of industry, the selection of applicants for employment becomes more and more important. As certain firms become more careful in this selection the greater is the tendency for applicants who are rejected for physical reasons with one company to seek employment with another company that has no entrance physical requirements. Apparently entrance examinations must be instituted in self-defense. This situation is already creating a serious social problem in vari-

ous parts of the country. There is an ever accumulating group of physically defective persons and persons over forty years of age who are unable to find steady employment. It would seem, therefore, that entrance examinations are here to stay and that they are among the first essentials of a well-regulated medical department in any modern industry. In spite of this fact we find an astounding diversity of technique of entrance physical examinations.

There is a comparatively small firm in this state whose insurance premium will be increased appreciably this year because of very high mortality and morbidity among its employees in the past three years. Plant executives were inclined to call this bad luck. A closer examination of their predicament revealed the fact that in at least five out of the last seven death claims paid, the cause of death was attributed to a chronic condition which had undoubtedly existed at the time of the applicants' employment. Further study showed that the entrance examinations being given to applicants by the part-time plant physician were little more than a farce. Practically no physical examination was given, and only a very poor history taken. No laboratory work was done. The employers were right about their bad luck, but they did not know that this was in the selection of their plant physician.

There is a surprising variation in price schedules for medical service paid by industrial concerns. I know of one concern which pays \$200 for an appendectomy, and \$25 for a mastoid operation. There are many private physicians who are paid various prices for the same service by different concerns.

It has taken several years for industrial hygienists to take advantage of the studies made by Goldthwaite of Boston, and Brown of Harvard on the importance of posture and the effect of posture on general bodily well-being. The awakening, however, has been sudden, and today factory and office seating have become almost a fetish with some industrial physicians. Again, there are almost as many types of "good posture" stools and chairs on the market as there are furniture companies. My company has been engaged in a study of office and factory seating for nearly two years and is not yet ready with definite recommendations. These studies have involved painstaking classification of posture both standing and sitting, determination of the normal, the effect of various chairs and the taking of hundreds of shadowgraph pictures to aid in this study. Meanwhile furniture dealers have waxed affluent through the sale of patent chairs.

The value of periodic physical examinations to industry has become apparent, yet the technique of this examination in various industries varies to an almost unbelievable extent. Again, many industries are not using periodic examinations. Other industries make no attempt to follow up the results of the entrance physical examination and obtain the correction of major physical defects. It is quite possible that the actual benefits

\* Read before the Industrial Medicine and Surgery Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



of periodic examinations have been overestimated. It cannot be denied, however, that with the diseases presenting insidious onsets it seems quite possible that an employee could be kept on a self-supporting basis much longer if these diseases could be detected early.

These few examples, among many which I could cite, indicate an organization problem among industrial hygienists of the west. They point out opportunities for standardization of common procedures. There seems to be a tendency for each man to play a lone hand.

#### MUTUAL SUPPORT

Examination of claims for total temporary disability in our office recently exposed what appeared to be an epidemic of acute appendicitis in a comparatively small group of employees in a California city. Personal investigation disclosed the fact that all recent recipients of appendectomy worked in the same department which had to do with storage batteries. Examination of the removed appendices, a glance at the gums of the patients, and the blood smear in each case revealed the fact that the physician in charge had evidently been under the misapprehension that appendectomy would cure lead colic.

This example brings up my next point in the advantages of a closer organization of industrial physicians. It is apparent that there are still many large western industries which have not yet learned the value of a medical department. All of us in the field of preventive medicine have a sales job to do. We are offering a service without which the world has lived contentedly for some ten thousand years. Preventive medicine has only become a science within the last fifty years. Industrial leaders must, therefore, be shown the value of a medical department, and one of the best sales arguments which can be used is to quote the favorable experience of some other industry, preferably a competitor. Under present conditions the plant physician knows little or nothing of the work of his colleagues in other plants. There is advantage in an organization which will bring together these specialists who are engaged in the same line of work for frequent discussion of common problems; success or nonsuccess with given procedures, acting as a clearing house for difficult questions, etc. In other words, a pooling of results may well be made for the advantages of mutual support.

Employers must be shown before they are willing to give adequate financial support to a medical department. There are many ways of doing this. Some industrial physicians have been more successful than others. Some perhaps never will be extremely successful. But, certainly, all will be a little better able to do this sales job after they have listened to the experiences of their successful colleagues.

#### INDUSTRIAL HEALTH AND PUBLIC HEALTH

There is another object in closer organization of the industrial physicians in the west which appeals to industrial hygienists and public health men alike. There is a distinct gap between the

public health machinery of the community and the public health machinery of industry. The industrial physician rarely knows anything of his health department or of the legal requirements under which it operates. When he is forced to turn to a medical relief agency for the care of one of his employees he has little knowledge of the local agency best equipped to care for this employee's needs. The value of the entire procedure of bedside or part-time nursing is usually overlooked by the industrial physician. So-called industrial nurses as a whole are a most disorganized group. Those who work under a plant physician who is an inspired leader become extremely competent and leaders in the field of industrial nursing. Those who are at the disadvantage of having no plant physician to work under are sometimes among the saddest specimens of the nursing profession I have ever seen. In other words, the development of this entire industrial branch of the nursing profession is dependent upon the development of industrial hygiene and the leadership of the industrial physicians.

#### SUGGESTIONS

As I see it, the group here today could form an excellent nucleus for the closer organization of industrial physicians throughout the state. What is needed is an organization consisting of local branches which can be called together six to twelve times a year, and which will send to this annual meeting three times the number who have been attending in the past. Two ways are apparent by which this can be done. First, in many counties of the state an industrial section of the county medical society can be formed. This has many obvious advantages. The chief disadvantage is that its membership would necessarily be limited to members of the county medical society. There is a considerable group of statisticians, laboratory men interested in research along industrial hygiene lines, nurses, personnel directors, and social workers who might be interested in becoming members. Perhaps these people could be taken care of through some form of associate membership. The second plan which is apparent is to form industrial hygiene sections of the newly created local branches of the American Public Health Association. During the past year the Southern California Public Health Association has been organized in the southern part of the state, and the Northern California Public Health Association in the bay and valley regions. Other local associations are in the process of formation. Membership is limited to those engaged in any form of public health work, but lay people who are interested may be admitted as associate members. I have the assurance of Dr. William C. Hassler, president of the Northern California Public Health Association, and Dr. J. L. Pomeroy, president of the Southern California Public



Health Association, that such a proposal on the part of this industrial section of the California Medical Association would be most welcome.

#### SUMMARY

I have attempted to point out some of the shortcomings of industrial hygiene development in the west as I have seen them from my own observations. These shortcomings consist of lack of standardization, failure to profit from the successes and mistakes of others in similar lines, failure to pool successful experience for the benefit of mutual support, failure to teach their full value to all western industries, and a tendency to isolate themselves from the public health program of their communities. The chief reason for these shortcomings seems to be the rapid growth of the entire industrial field in the west and the lack of organization among western industrial hygienists. The formation of industrial hygiene societies either as branches of the county medical societies, or as branches of the western division of the American Public Health Association is proposed for your consideration.

600 Stockton Street.

#### DISCUSSION

C. O. SAPPINGTON, M. D. (602 Hutchinson Building, Oakland).—Doctor Shepard has rightly spoken about the uniqueness of the problems of industrial hygiene and the fact that they are no more than merely touched upon by the other specialties of medical practice. In order that we may not be just "shooting at the moon" perhaps it would be well to name the problems of industrial hygiene. Most authorities agree on the following: safety, illumination, ventilation, dust, poisons, physical examinations, reexaminations, correction of physical defects, fatigue, shock, first aid to illness, mental hygiene and, last but not least, possibly one may not be facetious in mentioning the executive as one of the problems.

The lack of standardization of procedures in western plants and industries is only another evidence of the "lag" which usually takes place between the acquisition of knowledge and its practical adaptation. Relative to this matter, both the National Industrial Conference Board and the American Association of Industrial Physicians and Surgeons have established standard methods for the guidance of those who might find them useful.

Specifically, perhaps no part of industrial hygiene is today more important than the correction of physical defects, periodic reexaminations and the proper disposition of the minor types of illness, for it is these things that are causing the greatest amount of loss of time, money and proper working comfort.

Doctor Shepard mentioned an interesting experience in regard to the confusing of appendicitis with lead poisoning in a considerable series of cases. Such confusion probably does not occur because of a lack of knowledge but through not being in a habit of thinking in certain terms. The industrial hygienist must continually think in terms of lead poisoning because he realizes that it is a major problem in industrial toxicology.

Finally we would do well to follow the example and experience of the American Public Health Association in the formation of sections, the promulgation of con-

ferences and the pooling of experience for future industrial hygienic procedures.

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RUSSELL A. JEWETT, M. D. (2525 East Thirty-Seventh Street, Los Angeles).—Doctor Shepard has clearly pointed out a few of the problems of industrial medicine.

When business executives realize that many practicing physicians do not know, or even comprehend, the problems of medicine as related to industry, that physicians are not industrial hygienists, and when practicing physicians realize that industrial medicine is not entirely the treatment of the sick and injured, but that the major problems are safety, sanitation, hygiene, and preventive medicine, then and only then, can we talk organization of industrial hygienists.

Practicing physicians who are attempting to do industrial work do need group discussion for the purposes pointed out by Doctor Shepard. Industrial medical records, especially of physical examination, should be standardized. Any practicing physician allowed to make these examinations should be taught the purpose of a physical examination for employment, of reexaminations, and the application of the follow-up value, and should also be taught how to make them from the industrial and health point of view.

These examinations are the basis of all procedures carried out by industrial hygienists, such as the control of posture, fatigue, lighting, ventilation, heat, cleanliness, dust, jars, vibration, noise, water and food, housing, recreation, and especially existing impairments and defects within the employee himself and in his working conditions.

We have county and state sections on industrial medicine, but the programs still deal with industrial surgery, and have not, in the state of California, until now considered the problems of the industrial hygienist. There are so few doctors in California who as yet are interested in industrial hygiene, it does not seem practical to have a section for industrial hygienists, although this is very desirable as well as advisable. Of the two plans proposed by Doctor Shepard I think industrial hygienists fit better into a section of the local branches of the American Public Health Association, as their work is primarily public health, but applied to a selected group working under certain social and economic conditions and controlled by a specialized management.

✽

PHILIP KING BROWN, M. D. (909 Hyde Street, San Francisco).—Three important points made by Doctor Shepard need serious consideration:

1. If industry is going to exclude the physically defective person over forty, who will employ them and who will correct the correctable defects?

2. What should constitute standard entrance examination to industry?

3. Is it not a great advantage that industrial hygiene and industrial medicine should come under the operation of some national organization as suggested by the writer; but should it not be, because of the magnitude of the problems, the National Association of Industrial Physicians and Surgeons with local branches wherever there are large industrial problems and not a special department of the American Public Health Association? The reason for this is that it is only through national organizations that a standardization can be established satisfactorily and that there is more relation between industrial hygiene and industrial medicine and surgery than between any of these things and the work of the American Public Health Association.

It has always seemed to me that the great mistake in large problems was too much splitting up into small groups and that the whole matter of public health would be improved if there were national organizations like the Red Cross, whose main function



was to raise money and call on other highly specialized organizations in emergency, and if the American Public Health Association not only carried on the type of work that it now does, but took over all the other national societies such as have been organized for the study and prevention of cancer, tuberculosis, red plague, mental hygiene societies, conservation of vision, and child welfare. The child welfare situation most strikingly has shown the futility of a multiplicity of organizations without an effective head. The move to unite seventy-eight national societies, organized to further some form of child welfare, is certainly a good illustration of the need for unification of effort.

The National Society of Industrial Physicians and Surgeons could cover the whole of the field. This society is certainly America's most efficient organization for solving the deplorable problems of sickness among the working classes—problems that have been presented in various European countries under the name of Social Health Insurance.

Finally, of course, there is the American Medical Association which represents the greatest influence for developing medicine by the physicians at large.

Where each problem is represented by one dozen different organizations no one is as effective as it would be if it were properly organized after efficient business methods. We want standardization and we want conservation of effort.

With the American Public Health Association doing its present work and enlarged to include the intensive study of preventable and other diseases like cancer and mental disturbance; with the National Association for Industrial Physicians and Surgeons taking care of the great problem of the health conditions attending industry; with the American Medical Association to study standards and advance the educational side; and with the Red Cross to raise money to meet emergencies and subsidize special investigation that seemed urgent, I believe that we should make better progress in this country, without the deteriorating influence of a state or national health insurance plan, than we are doing under present conditions where each individual organization is attempting all.

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DOCTOR SHEPARD (closing).—This discussion seems to bring out one important problem which all trained industrial hygienists have to face. That is, "what to do with the part-time industrial medical man who is chiefly interested in industrial surgery." I would point out that the problem which you face is quite similar to the problem of the part-time health officer interested mainly in his private practice. This has been at least partially solved in many places, and particularly in this state, by the formation of a health officers' organization. Under the able leadership of Dr. Walter M. Dickie, state health officer of California, the part-time health officers of the state have been brought into the Health Officers' Section of the California League of Municipalities, and have been made to feel that this is their organization. They have been given a voice in the councils of this organization and have without doubt both helped one another, and in turn been helped by the comparatively few full-time health officers who are included in the section. I believe that by skillful guidance and some statesmanship the trained industrial physicians of this state could carry out a similar project through some central organization.

The name of the organization and its affiliations are less important than its leaders. The group of men who belong to this section comprises a nucleus upon which a western industrial hygiene organization can be built.

## ABDOMINAL FOOD ALLERGY\*

### ITS HISTORY, SYMPTOMATOLOGY, DIAGNOSIS AND TREATMENT

By ALBERT H. ROWE, M. D.  
Oakland

DISCUSSION by Clifford Sweet, M. D., Oakland; Hyman Miller, M. D., Los Angeles; George Piness, M. D., Los Angeles.

FOOD allergy is a frequent cause of mild or severe abdominal symptoms.<sup>1</sup> That this is not appreciated by the medical profession is evidenced by the lack of its emphasis in the literature. Reference is made to abdominal food allergy in a casual way in many contributions on allergy, but other than the excellent articles of Duke,<sup>2</sup> this important cause of abdominal pain and gastrointestinal symptoms has received little attention. The writer has studied a group of eighty of these cases of abdominal allergy with or without migraine, over a period of several years, and in this article will extend his observations especially in regard to symptoms, diagnosis, and treatment.

#### CASE REPORT

A brief record of the following case exemplifies many of the possible symptoms of abdominal food allergy. This also illustrates the unsatisfactory experiences such patients often have with medical and surgical diagnosis and treatment, and outlines the method of allergic investigation and therapy with "elimination diets" which will be described in this article.

Mrs. W., age 39, had suffered from sick headaches and chronic indigestion for eighteen years. These symptoms had increased in frequency from once a month to one to three times a week during the last three years. Abdominal pain, cramping and pulling-in type, had recurred throughout the abdomen every few days, and for one month it had been constantly present. Pain in the sacral region and over the liver was also present. Severe constipation had been constant, and menstruation had been painful and associated with sore breasts. She was subject to marked depression, irritability and emotional instability.

She disliked no foods, but knew that cream, gravy, potato, and chocolate disagreed with her, and was uncertain about others. Eczema on the hands for twenty years showed an allergic tendency.

Family history was negative for allergy. An appendectomy and uterine suspension nine years ago and a gall-bladder drainage and removal of ovarian cysts two years ago because of abdominal symptoms and headaches had given absolutely no relief.

Physical examination including blood, urine, stool, and stomach analyses and gastro-intestinal roentgen ray studies were negative.

Skin tests with foods by the cutaneous and intracutaneous methods showed no positive or delayed reactions.

*Treatment.*—Complete relief from all the above symptoms has been present for one year with the use of an "elimination diet" as detailed in this article, and subsequent addition of foods other than rye, wheat,

\* Read before the General Medicine Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



bacon, peanuts, eggs, and chocolate. The taking of these has reproduced former symptoms.

Data on the seventy-nine other cases of indigestion, abdominal pain or migraine due to food allergy are to be reported in a forthcoming article.

#### FAMILY AND PERSONAL HISTORY OF ALLERGY

What should make the physician suspicious of food allergy as a cause of abdominal symptoms? Above all else, a family or personal history of allergy is most important, since a positive history of allergy in the family is obtained in upward of 75 per cent of these patients. Thus the occurrence of asthma, hay fever, eczema, urticaria, angioneurotic edema, migraine, and repeated colds, catarrh or bronchitis in any relative in the two preceding generations or in the patient's progeny should be carefully ascertained.

In like manner, the occurrence of any of these allergic manifestations in the patient's past or present history should make one consider allergy as a cause of gastro-intestinal disturbances or abdominal pain. Moreover, a careful inquiry into food dislikes or food disagreements in adult life as well as in childhood is most important because of the help such information frequently gives regarding foods to which the patient is actually sensitive. Thus the personal history of the patient becomes an important link in the establishment of the possibility of a food allergy.

As a general routine, in the recording of every patient's history, the writer feels that the presence of a possible allergy in the family or personal history should be very carefully determined. Allergy is at the basis of human symptomatology so frequently (it is variously estimated that 15 to 25 per cent of all people have some allergic symptoms), that it has to be considered in the diagnosis of every patient by the internist, surgeon, nose and throat specialist, neurologist and other physicians.

#### MANIFESTATIONS OF ABDOMINAL ALLERGY

The most frequent symptoms in the abdomen resulting from food sensitization are given below.

1. Pain in varying parts of the abdomen, either cramping, knife-like or aching, diffuse or remarkably localized, is often due to allergy. Pain or soreness over the liver area simulating gall-bladder disease is frequently present in these food-sensitive patients, and is probably due to hepatic congestion or edema resulting from the entrance of food proteins into the portal system. Symptoms that simulate appendicitis may be due to food allergy, as Lintz has emphasized, and may lead to needless surgery.

2. Indigestion characterized by nausea or vomiting, epigastric distress associated with distention, belching or regurgitation, heaviness in the stomach, and abdominal restlessness are often due to sensitization to foods.

3. Constipation or diarrhea, accompanied at times, by mucous colitis,<sup>3</sup> may be due to food allergy and may be relieved on the basis of such diagnosis and treatment.

4. Pyrosis is a marked symptom of food allergy in some patients. These patients frequently expe-

rience burning in the stomach after eating certain foods indicating the possibility of a mild or severe sensitiveness to many foods included in the diet.

Patients suffering with food allergy are subject to many manifestations of such sensitization other than those referable to the gastro-intestinal tract or abdomen.

Migraine, either alone or associated with nausea and vomiting, is one of the most important of these and has gradually gained recognition as an allergic condition. This was recently emphasized by the writer<sup>1</sup> and also by Vaughan.<sup>4</sup> Many patients have concomitant asthma, hay fever, urticaria, or eczema along with their abdominal allergy. Many have coated tongues, foul heavy breaths, recurrent nasopharyngeal congestions, and canker sores or recurrent white patches on the buccal mucous membranes. Weakness, mental confusion and generalized body-aching and anorexia are frequent. Pains in the mid or lower back referred from the abdominal disturbance may also be due to food allergy. The writer has studied a number of patients with unexplained fevers which have been due to food sensitization. Malnutrition, underweight and short stature also are common.

The cause of these manifestations of food allergy may be edema of the intestinal mucosa or spasm of the smooth muscle in the intestine itself. Irritations of the mucous membrane analogous to urticaria or dermatitis of the skin may occur in varying parts of the intestinal tract and could explain the canker sores and the recurrent pharyngeal lesions. Angioneurotic edema of the intestine probably explains some of the severe abdominal pain due to food allergy, and at times undoubtedly leads to unnecessary abdominal surgery such as was reported by Harrington.<sup>5</sup>

#### DIAGNOSIS

What are the important criteria for the diagnosis of an abdominal food allergy?

1. Family and personal histories, as stated before, will often reveal an allergic tendency which points to the possibility of allergy in the etiology of the patient's problem.

2. The history of food dislikes or disagreements is extremely important. These have usually been ignored by the physician heretofore being ascribed to whims or fancies. Whereas this is true in some cases, such opinions of patients must be more seriously considered in view of the recent recognition of food allergy. However, the patients may not realize which foods, especially the common ones, cause allergic disturbances. Therefore the determination of the offending foods must be made by skin-testing with "food proteins" and frequently by the use of "elimination diets" and food trial.<sup>6</sup>

3. Routine skin-testing of a patient suspected of food allergy with all foods and condiments is advisable. It is frequently helpful to test with other types of antigens, such as those of pollens and others, since positive reactions would indicate an allergic status in the patient. The scratch test frequently gives negative reactions to foods to



which the patient is sensitive as originally shown by Schloss, and emphasized by Duke,<sup>2</sup> and the writer.<sup>7</sup> Sensitization to such foods may be shown by the intradermal test though this method also fails to reveal food allergy in many cases. Much evidence, moreover, is against the routine use of this intradermal method by the average physician as stated by Vaughan.<sup>8</sup>

The writer therefore feels that much food sensitization must be determined by dietary trial in the presence of negative skin reactions. This procedure is also necessary with foods giving positive tests, as stated by Andresen, since the skin may indicate a potential sensitization which does not affect the gastro-intestinal tissues.

4. By the use of "elimination diets" and consequent broadening of such diets as detailed in the following section of this paper, foods productive of abdominal allergy or migraine may usually be discovered. This dietary trial is necessary in every patient suspected of food allergy, especially where skin tests are negative.

#### NECESSITY OF A GENERAL DIAGNOSTIC STUDY

In studying the patient from the viewpoint of a food allergy it must be emphatically stated that a careful and painstaking analysis of the patient's condition must be made. This should include a careful general history and complete physical examination, as well as various laboratory examinations such as blood, urine, stool, and stomach analyses as well as roentgen-ray studies of the gastro-intestinal tract and of the gall bladder and colon, if indicated. If some pathological condition in the abdomen is revealed, treatment should first be directed toward such a condition unless the likelihood of a food allergy indicates the adjustment of the diet at the same time. If such treatment of the pathological condition does not give relief a thorough trial of various "elimination diets" should be made before food allergy is ruled out and especially before surgery for indefinite pathology is done. Duke has emphasized the presence of pathology in patients suffering with food allergy suggesting the possibility that one condition predisposes to the other.

#### TREATMENT

##### 1. Based on history or food reactions.

When a patient gives a definite history of sensitization to wheat, milk or eggs or to any other food, or gives definite skin reactions to foods, simple exclusion of such foods frequently gives prompt relief to the abdominal symptoms or migraine. Exclusion of such foods must be absolute. Return of symptoms is usually due to breaking of the diet, even to a slight extent.

##### 2. Based on food trial with "elimination diets."

The trial of various diets is often necessary to determine the foods to which the patient is sensitive, especially when no skin reactions and no history of food dislikes or disagreements are obtained. The writer has found that such food trial is greatly helped by the use of "elimination diets."

These "elimination diets" include only a few foods so that the effect of individual ones can be

carefully observed. In order to obviate the harm resulting from starvation or an unbalanced diet, one or two starches, two to four vegetables and fruits, oil and sugar, have been included in each diet and should be taken in amounts sufficient to assure enough protein, calories, vitamins, and mineral salts to meet body requirements. This is especially important if it becomes necessary to try different "elimination diets" to diagnose and properly control an obscure food allergy. Foods to which patients are most often sensitive, such as wheat, milk, eggs, chocolate, orange, banana, tomato, potato and others, in their order of frequency as determined by a recent analysis of 175 food-sensitive patients by the writer, have been excluded from these diets. However, where no obvious sensitization to milk is present it may be used during the preliminary trial period. If symptoms are not relieved, one or more diets without milk should be tried before excluding a suspected food allergy. Patients are at times sensitive to all fruits, all vegetables or all foods in other groups, in which cases individual "elimination diets" must be formulated of the type outlined above.

Four "elimination diets" are suggested for routine use by physicians. The one selected should depend on the history of food idiosyncrasies and positive skin reactions. Diet No. 1 has been most useful as a basis on which to build the final "elimination diet." A suggested menu shows the possibility of serving a palatable meal with the few foods included in this diet No. 1. If the patient gives a history of disagreement or gives skin reactions to definite foods in the diet, or if the patient realizes that certain foods cause distress, substitutions of foods similar to those under suspicion must be made.

If relief is obtained inside of a week, with such an "elimination diet," the addition of one or two vegetables or fruits, to which no evidence of sensitization exists, is made every four to five days. If relief persists after two weeks, meats, cereals and other foods may be gradually added by the physician, excluding any which cause symptoms.

Wheat, milk, and eggs should not be added for several weeks. Of these milk should be tried first, especially in children, providing there is no definite evidence of milk allergy. If milk is excluded the calcium content of the diet is apt to be deficient, indicating the use of two to four grams of calcium lactate a day. Such milk sensitization often contraindicates butter in which case emulsion of cod-liver oil will supply calcium, phosphorus, and the deficient vitamin D.

Eggs frequently produce gastro-intestinal symptoms and their addition must be carefully watched. The writer, as well as Vaughan, has emphasized the importance of wheat in the production of abdominal allergy as well as migraine, angio-neurotic edema and other allergic conditions, and it should be the last addition in most cases. For proper relief it must be emphasized that the exclusion of foods to which the patient is sensitive must be absolutely complete, as even the slightest



amount of such foods may produce severe allergic symptoms.

In certain patients sensitization to foods is so extensive that a very narrow diet must be taken, the mineral content of which should be determined and increased to the normal requirement by the addition of calcium or iron or phosphorus if necessary, the vitamin intake being fortified by the addition of yeast or cod-liver oil. When sensitization to cod-liver oil is present, the use of irradiated<sup>9</sup> olive, cottonseed, or corn oil will supply vitamin D.

#### GENERAL MEASURES

The use of peptone before meals has long been recommended<sup>10</sup> for nonspecific desensitization to various foods. The writer has used peptone for several years in an attempt to desensitize against marked food allergies, without satisfactory results. However, there are undoubtedly individuals who are mildly sensitive to certain foods, symptoms of which are alleviated by the use of peptone by mouth, in one-half dram doses, thirty to forty-five minutes before meals. The hypodermic injection of peptone or its intravenous administration as recommended by Miller,<sup>11</sup> especially in migraine, has not yielded results comparable to those obtained by the use of the elimination diets already described. Vallery-Radot<sup>12</sup> has recently recommended the use of peptone (50 per cent) intracutaneously, but the good results obtained required daily administration which militates against its use as compared to the regulation of the diet itself.

The administration of calcium salts by mouth or vein has been disappointing in the writer's experience, and quartz-light therapy has been ineffective in the control of abdominal food allergy though it is recommended for its general constitutional benefit.

#### DESENSITIZATION TO FOODS

Patients frequently become desensitized to foods which have been excluded from the diet for several months. In some instances, however, such loss of sensitization requires years and may never occur. The feeding of increasing amounts of food, beginning with 1/100 or less of a drop of milk or egg, for instance, and the slow increase of the daily dose until one-half cup of milk and one-half of an egg is being taken at the end of several months may be successful. The reappearance of symptoms indicates too rapid an increase and some patients apparently cannot be desensitized by the feeding of the food to which they are sensitive. The hypodermic desensitization to common foods has been generally unsuccessful in the hands of various specialists in allergy.

#### SUMMARY

Food allergy as a common cause of gastrointestinal symptoms, especially gastric distress, cramping, and abdominal pain and constipation, needs more general recognition by physicians.

Migraine is frequently due to food allergy and

may be associated with abdominal disturbances due to a like cause.

A family or personal history of allergy or a dislike or disagreement for various foods should make the physician consider food allergy in the etiology of abdominal symptoms.

Skin tests are frequently negative to the extracts of foods to which the patient is sensitive.

"Elimination diets," several of which are appended to this article are helpful in determining the presence and type of possible food sensitizations when skin reactions are negative.

Abdominal allergy is frequently relieved by exclusion of foods from the diet to which the patient either gives positive or delayed reactions or a definite history of a dislike or disagreement. In many cases, however, diet trial by the use of menus similar to the "elimination diets" suggested in this article, with subsequent additions according to the plan here specified, is necessary for the treatment of patients afflicted with abdominal allergy. Though skin reactions are of help in indicating possible food sensitization it is possible for the physician to diagnose and treat abdominal food allergy as well as other manifestations of food sensitization such as certain cases of migraine, asthma, eczema, urticaria and angioneurotic edema with "elimination diets" such as have been outlined.

#### COMMENTS ON ADMINISTRATION OF ELIMINATION DIETS

1. Absolutely no foods other than those specified in each diet can be used. Thus in Diet No. 1, rice must not be fried with butter or lard, but only with the fat specified, which was olive oil. Absolutely no bread, milk, cream, or other nonspecified foods can be used.

2. Prescribed fruits can be used in drinks, salads, for desserts and jams and sauces.

3. Gravies for meats and sauces for vegetables can only be thickened with flour allowable, *i. e.*, rice flour in Diet No. 1; cornstarch in Diet No. 2; etc.

4. Olive oil in Diet No. 1, corn oil in Diet No. 2, cottonseed oil in Diet No. 3 are indicated according to sensitizations to olive, corn or cottonseed antigens.

5. Calories must be increased by plenty of sugar, oil and starch prescribed. Vitamins must be assured by plenty of vegetables and fruits prescribed.

6. In Diet No. 2, baked corn pone made with cornmeal and water, or cornmeal mush fried in Mazola oil or bacon fat, eaten with prune or apricot juice or plain sugar syrup, would be in order.

7. In Diet No. 3, tapioca, baked with peaches and sugar and flavored with orange or orange peel may be suggested.

8. In Diet No. 4, if patient is sensitive to fish but not to eggs, eggs may be substituted.

9. These diets are models on which other diets composed of foods indicated by history of food sensitizations and skin tests may be formulated if desired by physicians. Diet No. 1 has been found



I. "ELIMINATION DIETS"

|                                        | Diet No. 1                                                                 | Diet No. 2                                | Diet No. 3                                            | Diet No. 4                                       | Diet No. 5              |
|----------------------------------------|----------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------|--------------------------------------------------|-------------------------|
| Cereal                                 | rice*                                                                      | corn                                      | rice<br>tapioca                                       | rice<br>rye                                      | Milk alone for the test |
| Bread                                  | none                                                                       | corn pone †                               | none                                                  | rye rice ‡<br>Ry Crisp                           | period. Two to three    |
| Meat or Fish                           | lamb                                                                       | bacon<br>chicken                          | beef                                                  | cod, halibut<br>and white fish                   | quarts a day.           |
| Vegetables                             | lettuce<br>spinach<br>carrots                                              | squash<br>asparagus<br>peas<br>artichokes | tomatoes<br>celery<br>string beans                    | lettuce<br>carrots<br>peas<br>beets              |                         |
| Fruits and<br>Jams and<br>Fruit Drinks | lemon<br>pears<br>peaches                                                  | pineapple<br>apricot<br>prunes            | grapefruit<br>pears<br>peaches                        | pineapple<br>apricots<br>pears                   |                         |
| Miscellaneous                          | sugar<br>olive oil<br>salt<br>olives (unstuffed)<br>maple syrup<br>gelatin | sugar<br>Mazola oil<br>salt               | sugar<br>Wesson oil<br>salt<br>gelatin<br>maple syrup | sugar<br>olive oil<br>olives (unstuffed)<br>salt |                         |

\* Natural Rice is preferable because of vitamin content.  
† Corn pone is made with cornmeal, salt, water, and Crisco.  
‡ Rye rice bread.

1/3 cup rye flour  
2/3 cup rice flour  
6 level tsp. baking powder (Royal)  
4. level tsp. sugar

1/4 tsp. salt  
2/3 cup water  
1/2 tsp. shortening

This recipe makes eight small muffins. This recipe doubled can be made into a loaf. Perhaps more palatable if toasted. Royal Baking Powder contains no egg.

2. SUGGESTED MENU FOR DIET NO. 1

BREAKFAST:

|                  |                                                                                                                         |
|------------------|-------------------------------------------------------------------------------------------------------------------------|
| Rice             | Boiled, natural, served with peach or pear juice and sugar.<br>Fried in olive oil and served with sugar or maple syrup. |
| Pears or peaches | Large helping, fresh or canned.                                                                                         |
| Drinks           | Lemonade with plenty of sugar.                                                                                          |

LUNCH AND DINNER:

|            |                                                                                                        |
|------------|--------------------------------------------------------------------------------------------------------|
| Soup       | Lamb broth with rice and carrots.                                                                      |
| Salad      | Lettuce with pears or peaches with olives and olive oil and lemon.<br>Green or ripe olives, unstuffed. |
| Meats      | Roast lamb with gravy made with rice flour.<br>Broiled lamb chops.                                     |
| Vegetables | Spinach or carrots. Boiled natural rice.                                                               |
| Dessert    | Lemon gelatin or pears or peaches.                                                                     |
| Drinks     | Lemonade with plenty of sugar.                                                                         |

especially useful either as it is or with foods substituted for those to which patients were sensitive.

10. The "elimination diet" found to relieve patient's symptoms can be increased by gradual addition of foods to which the patient is found to be nonsensitive as outlined in this article.

242 Moss Avenue.

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#### DISCUSSION

CLIFFORD SWEET, M. D. (242 Moss Avenue, Oakland). Abdominal symptoms that have as their basis an allergic reaction to protein are sufficiently common to demand our attention. If anyone approaches the problem of explaining the cause of distress in the abdominal region without giving protein sensitiveness due weight he will in a considerable number of cases fail to arrive at the correct result. This, it seems to me, is in substance all that Doctor Rowe claims, and he has rendered valuable service by this and his other contributions to the subject.

For several years my work has been entirely with children, but at the moment I recall adults who suffered from severe abdominal distress as the result of the ingestion of certain foods. One in whom honey caused severe epigastric pain; another in whom even a trace of garlic caused severe abdominal discomfort and a migraine with vomiting so severe that a day's rest in bed was necessary; and another in whom English walnut brought on a crisis of abdominal pain, accompanied on one occasion, when a large amount was taken, by an edema of the glottis that was all but fatal.

In infants the process of adjustment between the individual and the proteins that are ingested and inhaled is smooth or rough according to his allergic inheritance. The colic of infancy is often the noise of battle resulting from the abdominal discomfort that arises from incompatible protein. Having this explanation in mind has often helped me to solve a difficult feeding problem, and very frequently the correctness of the diagnosis has been borne out, not only by symptomatic relief, but by the later appearance of other allergic manifestations such as asthma.



HYMAN MILLER, M. D. (1136 West Sixth Street, Los Angeles).—Doctor Rowe's statement that a syndrome which might be termed food allergy with abdominal symptoms actually exists, I can well substantiate. However, Doctor Rowe's statement that such a syndrome is common or, to use his own words, "often occurs" appears to me a bit exaggerated. Were this the case many asthmatic or hay fever patients sensitive to foods would be expected to exhibit abdominal symptoms, and anyone who has had experience with

any number of such individuals knows that this is not so. I also object to the statement that migraine may be the result of sensitization to foods since, in my mind, migraine is a very definite syndrome which in our experience may be present in an allergic individual, but no more commonly than in the general population.



GEORGE PINESS, M. D. (1136 West Sixth Street, Los Angeles).—Doctor Rowe would lead one to believe that abdominal allergy is a very common condition. I wish to take exception with him on this point, as our observations on several thousand patients thoroughly and carefully studied do not corroborate his findings although it is admitted that abdominal allergy does exist and may result from sensitizations to proteins other than those derived from food.

The use of elimination diets in my opinion is a roundabout and cumbersome method at the cause of symptoms, and even though the patient may be relieved of symptoms, is no proof that the symptoms were allergic in origin.



DOCTOR ROWE (closing).—The frequency of abdominal food allergy alone or associated with other allergic conditions such as asthma can only be appreciated by physicians who will study their patients intensively from the allergic viewpoint as outlined in my article. Failure to recognize food allergy as a not uncommon cause of abdominal pain, indigestion, mucous colitis, and other gastro-intestinal symptoms will handicap the physician in the diagnosis of his patient and, what is especially important, deny patients much-needed relief from symptoms which at times have resisted medical treatment for years.

Determination of food sensitization, it seems advisable to repeat, cannot depend on skin reactions alone and must often be ascertained by diet trial. Duke in his book on "Allergy," as well as other allergists, has stated that skin reactions, especially of the cutaneous type, are frequently negative in food allergy (and to a less extent in other types of allergy such as pollen) and when positive must be taken as a clue. Food sensitization as a cause of clinical symptoms, therefore, must be determined finally by diet trial even when skin reactions are positive. Though food sensitization can be diagnosed and controlled with my "elimination diets" without the aid of skin reactions, when reactions are obtained at the original sitting or, as often occurs, with retesting, they are of definite help in the problem.

My opinion that many cases of migraine as well as recurrent headache are due to food allergy is based on my successful control of such cases, thirty of which were reported at the recent meeting of the American Medical Association in an article on "Food Allergy." Vaughan in his article on "Allergic Migraine," already referred to, as well as Andresen arrive at the same conclusion. Miller and Raulston in 1923 felt that migraine was allergic in origin, but offered no plan for specific diagnosis or therapy. Food allergy cannot be said to be the only cause of migraine, but it is one which must be definitely considered.

It is hoped that my suggestions in regard to the diagnosis and treatment of food allergy will be of as much help to physicians and especially to those interested in gastro-intestinal disease as they have to me in my care of patients with such allergy. Decision as to the frequency of abdominal food allergy or as to the value of the method of its control by "elimination diets" must be formed after a thorough study of a considerable number of cases with the method I have described.



## PHRENICOTOMY AND THORACOPLASTY\*

## IN THE TREATMENT OF MULTIPLE SUPPURATIVE BRONCHIECTASIS

By A. CYRIL CALLISTER, M. D.

Salt Lake City, Utah

DISCUSSION by Leo Eloesser, M. D., San Francisco; H. E. Schiffbauer, M. D., Los Angeles; William C. Foorsanger, M. D., San Francisco.

UP to the time of the development of surgery in the treatment of suppurative bronchiectasis, the greater number of these cases were doomed to a slow death by fetid sepsis; were helped little, if any, by the administration of drugs; were frequently looked upon as tuberculous; were incapacitated for work and shunned by everyone because of the distressing foulness of their expectoration.

That multiple suppurative bronchiectasis of the more severe type is unilateral in the majority of cases is indeed fortunate, as an opportunity for surgical relief is thereby made possible. The medical man has usually used postural drainage in the treatment of the patient before he is referred to the surgeon, and the pulmonary surgeon should not overlook the importance of this treatment in building up the patient to withstand the severe and shocking surgery necessary in those cases in which surgical intervention is indicated.

## TREATMENT OF ACUTE CASES

Cases of multiple suppurative bronchiectasis fall, so far as treatment is concerned, into two groups—the acute and the chronic. Perhaps all acute cases should at first be treated by bronchoscopy; certainly before operation every case should have a diagnostic bronchoscopic examination. This will reveal any obstruction that exists, any foreign body located can be removed, and in the acute cases this removal followed by bronchoscopic aspiration will usually be all the treatment required. Tissue found obstructing a primary or secondary bronchus, which on removal and microscopic examination proves to be carcinomatous, precludes any further surgical measures. Also it is vitally important in these cases to visualize the affected bronchial tract by the injection of lipiodol and subsequent x-ray, and in a number of cases the injection of the lipiodol or the insufflation of barium subcarbonate into this affected bronchial tract cannot be accomplished until obstructing secretion has been aspirated by the bronchoscope. It is also a much better and more scientific procedure to inject the lipiodol under direct vision into the bronchi and lung tissue directly affected and get a concentration of the drug where the trouble is, than to depend on the mere trickling of the material down the trachea and the subsequent diluted spread of the material throughout the entire bronchial tract and lungs. These pa-

tients should be x-rayed in a few moments after the injection and instructed not to cough and so dislodge the injected lipiodol or the subsequent visualization will be unsatisfactory.

In a certain number of the acute cases, even after the foreign body has been removed and repeated bronchoscopic aspiration has been done, the condition of cough, septic temperature, and production of considerable foul sputum will continue. When that time arrives, bronchoscopic treatment should be discontinued and surgery of a more radical nature resorted to. It is to one of those methods of surgical treatment that I ask your consideration, together with the report of a case so treated.

Lilienthal (text page 93)<sup>1</sup> has aptly pointed out that in the term suppurative bronchiectasis the name of the condition is taken only from the more apparent part of the process, that it is in reality often accompanied by a parenchymatous suppuration, and hence is associated in many cases with multiple lung abscesses which drain into the suppurating dilated bronchi with here and there an occasional obstruction. From a surgical point of view it may then be placed under the group as multiple pulmonary abscesses draining into bronchi.

There are numerous causes of suppurative bronchiectasis, the most common of which are: (1) the aspiration of foreign bodies either originally septic or resulting in a septic or suppurative bronchopneumonia; (2) septic emboli, following tonsillectomy, which strike the lungs through the jugular circulation. If a patient survives this septic bronchopneumonia the chronic bronchiectatic condition will usually ensue. Other causes are (3) chronic nasal sinusitis, (4) carcinoma of the primary bronchi, (5) embolism following any operation, and (6) pneumonia.

If one studies carefully the pathology of this form of bronchiectasis he will find that in the chronic cases morbid changes have taken place in the walls of these bronchi in the loss of elastic tissue, in induration, in round-cell infiltration with granulation tissue formation and often calcification. This will account for the almost uniformly poor results which follow medical treatment. And since many cases which involve the lower lobe have firm adhesions to the diaphragm, artificial pneumothorax will be of no avail in securing a beneficial compression of the lung. The deplorable part of the situation is that in the majority of cases the patient should have been brought to the surgeon much earlier for treatment than he usually is, and not as a last resort. When seen by the surgeon the patient is usually anemic, septic, has a myocarditis, a marked clubbing of the fingers, is underweight, poorly nourished, expectorating large quantities of fetid material, has probable numerous amyloid changes in his liver, spleen and other important organs, and last, but not least, has completely lost his morale. I cannot too strongly emphasize that if these patients are to receive surgical benefit, they be referred to the chest surgeon early in the course of their disease. The surgery necessary involves consider-

\* Read before the Salt Lake County Medical Society, October 24, 1927.





Fig. 1.—Anteroposterior view of chest with injection of bronchiectatic area with lipiodol under direct vision with the bronchoscope.



Fig. 2.—Lateral view of same chest with lipiodol injection done with bronchoscope.



Fig. 3.—Anteroposterior view of chest with injection of bronchiectatic area with lipiodol, using the indirect or gravity method.

able risk to the patient, which risk is only heightened by a lowered physical resistance.

The use of lipiodol to outline the extent of involvement of the diseased area, combined with the x-ray, has proved so valuable a diagnostic aid that to attempt either to diagnose or to treat without their help is absolutely unjustifiable.

The lung surgeon of tomorrow must be a trained bronchoscopist in order properly to treat acute cases, and to decide which chronic conditions are operable and which inoperable.

#### TREATMENT OF CHRONIC CASES

The surgical procedure in the chronic case depends entirely upon the location and the extent of involvement of the lung. In small areas well localized and capable of approach through the chest wall, the treatment is the same that one would use in approaching an abscess in the locality—a two-stage or one-stage operation, depending entirely upon the presence or absence of walling off adhesions over the area. The involved area should be treated with thorough cauterization followed by packing. Subsequent steps may have to be taken to close the resulting bronchial fistulae, but a little delay on the part of the sur-

geon is often of more value than premature surgery, as many of these bronchial fistulae will close spontaneously if given sufficient time. The chest surgeon, unlike the abdominal surgeon, does not see his wounds heal in the self-appointed time of ten to fourteen days; he is more likely to do almost daily dressings for ten or fourteen weeks before wounds finally heal in septic chest cases.

*Lobectomy.*—Where the amount of sputum is large an entire lobe or even two-thirds of a lung is often involved. Obviously drainage of this large mass of lung tissue through the chest wall is impracticable. One of two methods of attack may be selected, first the removal of the septic lung tissue, and second, extrapleural compression. The cautery method of Graham is by far the safer method for removal of lung tissue, as the surgeon can stop whenever the patient's condition calls for cessation of the operation. The surgeon can resume the operation when the patient's condition permits further work, whether it is the next day, the next week, or the next month. The patient, during the waiting interval, will have been receiving beneficial drainage. This is not true when the resection and suture method of lobectomy is used, as hemorrhage must be con-



Fig. 4.—Lateral view of chest injected with lipiodol by the gravity method.

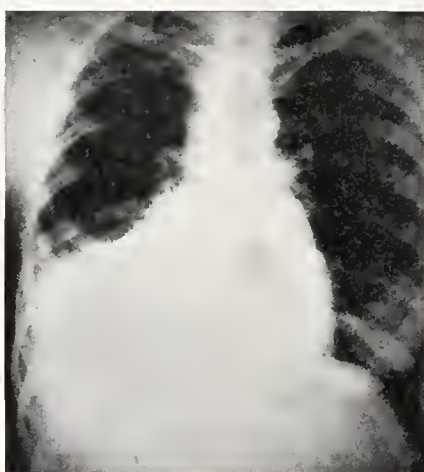


Fig. 5.—Anteroposterior view of the chest following extirpation of the right phrenic nerve showing the rise of the diaphragm and the diminishing in the size of the chest cavity following this operation.

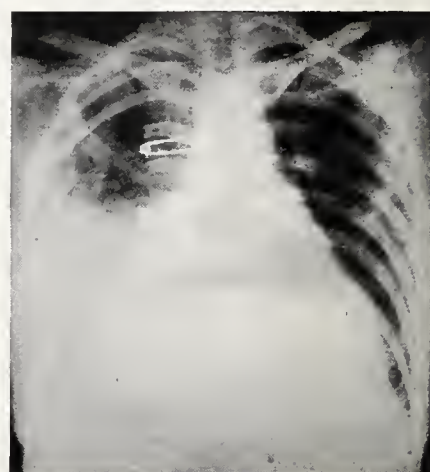


Fig. 6.—Anteroposterior view of the chest following posterior section of the fifth to the eleventh rib, inclusive. It will be noted that the upper four ribs, which have not yet been resected tend to prevent collapse of the chest cavity on that side.



trolled before the surgeon can stop, and patients may be subjected to too great shock. Lobectomy by the canterly method of Graham causes comparatively little hemorrhage, and the shock is small considering the surgery that is done.

*Thoracoplasty.*—The second method of treating these cases, namely by external compression with massive collapse of the lung in three stages, is much safer.

This method consists first of phrenic nerve extirpation followed by a two-stage extrapleural posterior thoracoplasty. As Alexander<sup>2</sup> has so justly emphasized, the diaphragm on the affected side must be put at complete rest preceding extrapleural thoracoplasty in order to avoid that most dangerous complication of this operation, namely, aspiration pneumonia. The operation used is the Felix radical phrenicotomy, sometimes called phrenicus exeresis, which consists of drawing the phrenic nerve out of the chest from a depth beyond the place where the accessory phrenic nerves usually join the main trunk. This point is about seven centimeters below the first rib or twelve centimeters from the point where the main

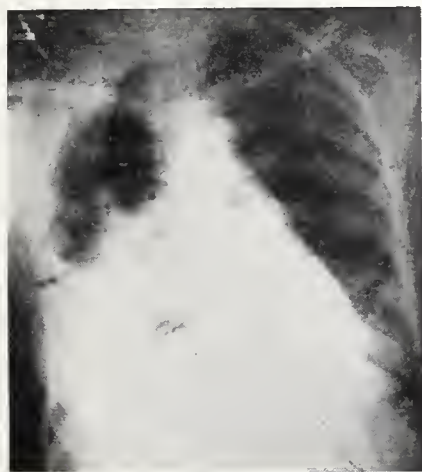


Fig. 7.—Anteroposterior view of the chest following the complete operation and taken shortly before the patient left the hospital.

phrenic nerve is conveniently sectioned on the anterior scalenus muscle in the neck. It is important, because of these accessory phrenic nerves, that the nerve be extirpated and not merely sectioned, as in the latter case a paralysis of the diaphragm on that side which the surgeon is striving for will not be complete. This operation is done entirely under local anesthesia. In the paravertebral thoracoplasty the anesthesia is again local, and is done by the Wilms-Sauerbruch technique, which consists of both paravertebral block and interosseous infiltration. It is preferable to remove the sections of the lower five or six ribs in the first stage and complete the operation in the second stage. The first rib is particularly difficult to section as it lies deep, nearer the front than the back of the chest, is grooved by the subclavian artery, and presents its posterior inferior edge to the operator rather than the flat posterior surface as the other ribs do. I have found Lilienthal's guillotine of great help in removing this first rib.

The general course of approach follows the outer edge of the erector spinae muscles, but these must be sectioned transversely over the neck of each rib in order to cut the rib as near the vertebral column as possible. The muscles between the scapulae and the vertebral column are sectioned in resecting the ribs in this region and afterward carefully repaired to produce as little disability of the shoulder in this region as possible.

The operative shock is considerable. An anemic patient should be transfused beforehand, and a donor should be ready immediately after the operation, as transfusion will almost surely be necessary because of the large blood loss and shock involved in this operation. Rapid teamwork is necessary. Sauerbruch has shown in his statistics that, in any of these operations that consume over an hour, the patient almost certainly dies. Oxygen and intravenous glucose and saline are usually necessary supplements to the operation.

#### CASE REPORT

Mrs. E. M., age nineteen, admitted to the L. D. S. Hospital, October 7, 1926.

Two years ago the patient was operated on at a local hospital for removal of tonsils and adenoids, and a week later developed what was diagnosed as a bronchopneumonia. She was very ill with this condition for about three weeks, but gradually improved so that she was able to leave her bed. She had developed an almost continuous cough with the production of a copious thick, fetid sputum, the amount reaching as much as 8 to 10 ounces in twenty-four hours. Her weight before the tonsillectomy had been 129 pounds, and at the time of examination was but eighty-three pounds. She had chills every afternoon, followed by fever which reached 101 to 102 degrees each afternoon. She was short of breath, pallid, and barely able to walk for a small portion of the day. She had been under observation and treated by several doctors since the onset of her illness, was gradually growing worse, and was referred to me with a diagnosis of lung abscess, for decision as to whether she could be helped by surgery.

Her past history shows measles and mumps in childhood. She is married, but has recently been deserted by her husband because of her physical condition.

*Physical Examination.*—A poorly nourished and anemic young woman with clubbed-fingers and a persistent cough. Her temperature on admission was 102.8, her pulse 100, and her respirations 30.

Pupils equal and react to light and accommodation. Nose not obstructed. Throat negative. The teeth in fairly good condition. Neck shows no enlarged glands, nor is there any abnormal enlargement of the thyroid.

Heart dullness about normal in size and position. Sounds regular and of fair quality, no murmurs, nor thrills. Apex impulse in the fifth left interspace and about four and one-half inches from the midsternal line. The chest on percussion shows dullness of the entire right side up to the level of the fourth interspace posteriorly and slightly higher anteriorly. The breath sounds were rather distant and vary considerably over different places listened to. In some spots moist râles could be heard. The fremitus also varied considerably. A few moist, coarse bronchial râles could be heard over the left chest, but there was no abnormal dullness, and the breath sounds were of fairly normal quality.

Abdomen soft, slightly tympanitic. No masses, spasm nor tenderness. The liver edge and the spleen were not palpable. Pelvic examination showed no ab-



normalities. With the exception of clubbing of the fingers the extremities were negative.

Urine: alkaline, sp. gr. 1010; faint trace albumin; many pus cells; no casts.

The patient was put to bed on postural drainage treatment and the chest x-rayed. The plate showed the entire lower half of the right chest opaque with no evidence of a fluid level. On the third day a bronchoscopic injection of lipiodol was done and the chest again x-rayed. Figure 1 shows the anterior-posterior, and Figure 2 the lateral views of the chest, showing bronchoscopic injection of the lipiodol. They show numerous dilated bronchi ending in clubbed endings of terminal abscesses. Figures 3 and 4 show the anterior-posterior and lateral sections of the chest with lipiodol introduced by the indirect method, dropping it down the trachea. The advantage in visualization to be secured by bronchoscopic injection of the lipiodol over the indirect or gravity method is readily seen.

It was decided because of her wide septic swing in temperature to continue postural drainage and general supportive measures to improve her general condition before operation. She was accordingly discharged to her home on October 13, 1926.

Patient readmitted to the hospital on November 23, 1926. Her condition was slightly improved, but her cough was very persistent and she was running a septic temperature. On November 27, under local anesthesia one-half per cent novocain, a radical extirpation of the phrenic nerve was done (Felix operation). This was followed by immediate epigastric pain and tachycardia which was not persistent. Her chief complaint was of considerable pain in her right shoulder. The coughing decreased and, although postural drainage was continued, the amount of twenty-four-hour sputum was considerably lessened. Figure 5 shows the diminution in size of the chest cavity as a result of the paralysis of the right side of the diaphragm, due to the right phrenic nerve resection. The sputum had been persistently negative for tuberculosis on fifteen examinations, and at this time showed a large amount of pus, streptococci, staphylococci, and degenerated epithelial cells. The wound healed by first intention and she was discharged home on December 10 to gain what benefit she could from this preliminary operation.

On January 18, 1927, she was readmitted, running a slight afternoon temperature of one or two degrees, and the twenty-four-hour amount of sputum had diminished to one and one-half ounces. The cough had become more infrequent and had permitted the patient to sleep much better at night. Her white blood count was 15,780, her hemoglobin 60 per cent, and her red count 3,900,000. She was typed for transfusion. On February 3, under the Wilms-Sauerbruch technique with local anesthesia, sections of the fifth to the eleventh ribs inclusive were removed. The shock reaction was rather marked, and the patient was transfused with 700 cc. of blood immediately following operation. Her blood pressure ranged from a systolic of 86 to 96 for forty-eight hours following the operation. Oxygen was administered intermittently during this period together with intravenous glucose and saline. The patient gradually recovered and the wound healed kindly. Figure 6 shows the x-ray of the chest cavity following the partial resection of the lower six ribs. Upon examination of this x-ray one can readily see how the upper ribs, which have not been resected, prevent collapse of the chest cavity. On March 10 the patient's condition was such that the second stage of the operation was done under local anesthesia, the upper four ribs being removed. The reaction was not so marked on this occasion, but on the second day after the operation the patient had a sudden chill followed by a pain in the left chest, pulse of 140 and respirations of 44. A coarse, pleural friction rub developed in the left chest anteriorly, and the patient's condition was precarious. Oxygen was given almost continuously to relieve the cyanosis, and

heat applied to the left chest. The temperature dropped by crisis in forty-eight hours from 104 to normal in eight hours. It then developed a slight septic swing, but the patient's condition was very much improved. The temperature continued to have a septic swing until April 2, when 300 cc. of green, turbid fluid was removed by puncture. Her condition had continued to improve to such an extent that she was permitted to go home ten days later to continue her convalescence. Figure 7 shows the condition of the right chest cavity following the phrenic nerve extirpation and resection posteriorly of the entire eleven ribs. If this is compared with Figure 1 it can readily be seen that a marked decrease in the volume of the chest cavity has been accomplished which, by actual measurement, is diminished to one-eighth its original size.

Patient has been seen at two-week intervals at the office. A summary of her condition shows that she has gained twenty-nine pounds, has a normal temperature, sleeps all night without coughing, coughs only occasionally during the day, is doing her own work, and is raising less than one-half ounce of sputum in twenty-four hours. The sputum has lost much of its offensive odor.

On September 11 this patient was readmitted to the hospital with a gangrenous appendix, which was removed under local anesthesia and from which she made a satisfactory convalescence.

#### CONCLUSION

1. Chronic suppurative bronchiectasis should be treated by surgical measures. This is particularly true when repeated bronchoscopic aspirations do not afford permanent relief.

2. Extensive lesions of this sort can be treated best by extrapleural compression. This treatment is probably safer when it consists of phrenic nerve extirpation, followed by posterior thoracoplasty which should be complete for the side affected.

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2. Alexander: Surgery of Pulmonary Tuberculosis.

#### DISCUSSION

LEO ELOESSER, M. D. (490 Post Street, San Francisco).—To fully discuss Doctor Callister's interesting presentation would take more space than the journal would be ready to allot me; so many of his statements invite discussion in spite of the uncommonly good result of his treatment. Abscess and bronchiectasis should, I think, be kept clearly apart, although I will concede that the chronic indurative pneumonias that follow old abscesses may occasionally carry bronchiectatic dilatations in their train, as Doctor Callister's patient evidently did. Bronchiectasis, however, rarely causes extensive parenchymatous suppurations; indeed it is striking how well the suppuration is confined to the bronchiectatic pouches, even when the suppuration is of very long standing.

Upper respiratory infection has been the most frequent cause of bronchiectasis in patients with whom I have had to deal.

This, however, in passing; I have been much disappointed in the results of external compression for bronchiectasis. The sputum has been diminished, it is true, but it has never disappeared; the operation is not without risk, as the stormy convalescence and alarming postoperative course of Doctor Callister's patient shows. I imagine that in less energetic hands and with less careful postoperative treatment she would have succumbed. Opening the suppurating pouches with the galvanocautery after the method of Graham has, when all the pouches are really open,



been more satisfactory and has caused entire cessation of cough and sputum.

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H. E. SCHIFFBAUER, M. D. (520 West Seventh Street, Los Angeles).—Doctor Callister has given a very terse and excellent presentation of the treatment of suppurative bronchiectasis. I wish to endorse this method.

It is this type of paper which will help to educate the internist in the value of having his bronchiectatic patient under the supervision of a surgeon. The chest surgeon can assist the internist in the outline of the nonoperative treatment and can select the proper time for surgical intervention.

The suggestion that the chest surgeon be a bronchoscopist is a good one, as it will enable him better to visualize the lung pathology with which he is dealing.

Repeated bronchoscopy with aspiration and the injection of lipiodol is a decided advantage to the patient in preparing him for operation.

The operation on the phrenic nerve might be more properly termed phrenic neurectomy; as phrenicotomy implies only a severing of the phrenic nerve, whereas in the case reported a neurectomy was performed. In small bronchiectatic cavities at the base a phrenic neurectomy is all that may be required. I have a patient operated upon fourteen months ago in whom the expectoration is so slight and without any paroxysm of coughing, and whose general condition is so good, that further surgery has been refused.

It is always advisable to perform a phrenic neurectomy before other major operations; it has many advantages and no serious disadvantages.

As to paravertebral anesthesia, I have found it to be dangerous and unnecessary. Undoubtedly some of the serious postoperative reactions are due to this method, and several deaths have been reported from its use. The intercostal block anesthesia is a satisfactory anesthesia, so far as pain is concerned. For a psychic effect, which is necessary in many patients, I use the minimum amount of ethylene sufficient to abolish consciousness.

The Wilms-Sauerbruch extrapleural thoracoplasty is the operation of choice in certain types of early chronic bronchiectasis, the Graham cautery method and lobectomy being reserved for the more extensive involvements.

With the proper application of the surgical procedures mentioned, many patients suffering from chronic bronchiectasis can be cured and returned to their former mode of living.

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WILLIAM C. VOORSANGER, M. D. (490 Post Street, San Francisco).—Doctor Callister has presented a brilliant exposition of his subject with a brilliant result in a case of suppurative bronchiectasis treated by thoracoplasty. Naturally I can only discuss the medical aspect of the subject which does not advocate external compression as a cure for bronchiectasis. In my hands artificial pneumothorax has never caused a permanent cessation of cough or sputum in bronchiectasis.

Hedblom, who at first strongly advocated thoracoplasty in bronchiectasis has become more conservative, due to recurrences; and Lambert, with a vast experience in this work, does not believe the operation is permanently curative. The best surgical results have been obtained by Graham's gradual cauterization of abscessed cavities and gangrenous pouches. It would be interesting to have Doctor Callister report on his patient in another year and let us know if symptoms have recurred.

Bronchiectasis is a multilocular disseminated disease, and collapsing one lung does not prevent the disease recurring in the other lung. I am firmly of the belief that the cure of bronchiectasis lies in its early recognition and early elimination of its cause,

which in a large number of patients is due to infected sinuses. In a recent publication on "Undiagnosed Cough" we stressed the point that there is a 38 per cent group which becomes either bronchiectatic or tuberculous. The potentially bronchiectatic group will often yield successfully to an autogenous vaccine. Even when the bronchiectasis becomes fairly progressive, bronchoscopy, postural drainage, and the use of an autogenous vaccine should be tried before resorting to surgical intervention.

In spite of Doctor Callister's splendid result, I cannot agree with his conclusion that even extensive bronchiectatic lesions should be generally treated by "extrapleural compression."

✽

DOCTOR CALLISTER (closing).—I wish to thank Doctors Eloesser, Schiffbauer, and Voorsanger for their kindly discussion of this paper. Although there is much debatable ground covered in this method of treatment, it is applicable in a considerable number of cases, and where the usual medical methods are not gaining ground in a patient's condition this treatment will in suitable cases give definite improvement and perhaps an occasional cure.

Graham's method of cauterization is preferable when the process is not extensive, but to use it in a widespread unilateral process would virtually amount to lobectomy, which carries a much higher mortality than extrapleural thoracoplasty.

Paravertebral anesthesia when accomplished lessens the amount of novocain injected and shortens considerably the duration of the operation by doing away with considerable of the interosseous block, a time-consuming procedure.

## HYPERPYREXIA\*

### REPORT OF AN UNUSUAL CASE WITH RECOVERY

By HAROLD M. F. BEHNEMAN, M. D.  
San Francisco

DISCUSSION by Chauncey Leake, Ph. D., San Francisco;  
Newton Evans, M. D., Los Angeles.

AUTHENTIC reports of unusually high temperatures in man seldom occur in the literature. Many of them, partly because of the human interest appeal to the laity, are gross exaggerations which occupy newspaper space, cause comment, and are forgotten without investigation. An exception to this, however, was the Escanaba case which Woodyatt and Fishbein investigated in 1923,<sup>1</sup> and proved to be a hoax perpetrated by an hysterical woman. Moreover, the majority of the few incidents of hyperpyrexia reported, are temperatures just preceding death which is a frequent physiological observation.

### MECHANISM OF TEMPERATURE REGULATION

The mechanism of temperature regulation in the human body has long been a subject of research, and the source of many hypotheses. Such regulation has been accounted for on two main theories: one, that it is due to changes in heat production, the other "held by a minority, that it is kept so by changes in heat dissipation under the varying conditions of external temperature."<sup>2</sup> Ott feels that the corpus striatum and tuber cinereum play a prominent part in the production of fever. Burton-Opitz has stated that in his

\* From the Dermatological Service, University of California Hospital.



belief fever is merely one of the expressions of a cellular reaction instituted in consequence of pathogenic influences, and is a result of a change in metabolism of the tissues.<sup>3</sup>

Other portions of the brain than the corpus striatum, have been proven to have a relation to heat regulation, but the latter, through the heat puncture, and other methods, has claimed the most attention. Barbour showed that when the corpus striatum is heated to 42 degrees C. or higher, there follows a fall in body temperature, while cooling of that region to 33 degrees or lower causes a rise in body temperature.<sup>4</sup> Howell found that similar reactions took place upon the application of various substances to this body, *i. e.*, chloral, antipyrin, quinin.<sup>5</sup> He believes that temperature regulation is controlled through the following mechanisms:

#### *Heat Loss—Physical Regulation*

1. Sweat centers and nerves.
2. Vasomotor center and nerves.
3. The respiratory center.

#### *Heat Production—Chemical Regulation*

1. Motor nerve centers and fibers to muscles.
2. Stimulating action of food on metabolism.

In support of the above theory, is Woodyatt's work, in which he dehydrated animals with intravenous glucose and got temperatures of 108 degrees F. which were relieved by ingestion of water.<sup>6</sup> In connection with the part played by protein metabolism, Halliburton and Mott proved the fact that the globulin of nerve cells coagulates at 42 degrees C.<sup>7</sup> Kornblum does not feel that the heat center has been definitely assigned to one part of the brain, and believes that the term "temperature center in the brain" is misleading.<sup>8</sup> He feels that there are reflex arcs, whose chief pathways lie in the basal ganglia and brain stem, and that it is through derangement of these pathways that temperature disturbances are brought about. He is a firm believer in the theory that fevers are of toxic origin, as is Howell, supporting the theory that the cleavage products of protein caused by bacterial growth cause the fever. Hyperpyrexia is common in heat stroke, brain and spinal cord injuries, hysteria, and in septicemias. The modern conception seems to be rather prevalent that the increase in heat production is often due to a medullary edema. McKenzie and LeCount at autopsy, found 22 of 37 brains edematous, death being due to heat stroke.<sup>9</sup>

#### SURVEY OF SOME CASES REPORTED

As stated before, reports and occurrences of hyperpyrexia are common just preceding death, and even right after death, so these reports are not included here, except that of Fairly and Stewart's high readings. They record two temperatures of 109 and 109.6 degrees F. in two patients with cerebrospinal fever.<sup>10 12</sup> Cases reported with recovery are very few. Williams writes of one reading of 108 degrees F.<sup>11</sup> and Lloyd in Australia reports a case of food poisoning whose temperature reached 107.4 degrees F.<sup>13</sup> One of the few occurrences in infancy is the case of

Manning, whose ten-weeks-old patient with cerebrospinal meningitis had a temperature of 109 degrees F. with recovery.<sup>14</sup> In a larger series, Gauss and Meyer listed 38 patients with a temperature reaching 110 degrees F. in a severe influenza, with complete recovery.<sup>16</sup>

The largest series of heat stroke cases reported is from Chicago. Gauss and Meyer found that of 158 patients, 63 had died, and 46 of those had run a temperature of 105 degrees F.<sup>15</sup> The only other observer to report hyperpyrexia of 110 degrees was Pattison, whose patient completely recovered.<sup>17</sup> While common in hysteria, the heights are not so great, Greene stating that the highest fever he has observed in this condition was 104 F.<sup>18</sup>

Very few workers mentioned the relation of pulse and respiration to these hyperpyrexias. Johnson observed that with a temperature of 110 degrees F. the pulse rate averaged between 150 and 180 per minute, with respirations slightly increased.<sup>19</sup>

#### COMMENT ON CASE REPORTED

The case I wish to report was admitted to the hospital from the dermatological out-patient department with a moderately advanced mycosis fungoides. The case history which follows later, gives the salient features of the patient's course while in the hospital. The incident of hyperpyrexia reached 110.6 degrees F., a total of 12 degrees of fever. It was at this height at least one hour and decreased rapidly when the fall once started. There is no doubt of the authenticity of the reading, as careful supervision was made of the patient during the observation, and several thermometers were used, two of them giving the exact reading of 43.7 Centigrade. Readings were by mouth, as the patient was not irrational or stuporous enough to prevent this procedure. The ward intern checked the whole situation, reading the thermometers, as well as standing by at one reading. Two student nurses took the original readings, and called the night supervisor, who also read the thermometers.

The patient complained comparatively little during this whole night, and remembered only a commotion about his fever, and that several thermometers were put in his mouth. The subjective and objective improvement for two weeks immediately following this hyperpyrexia was remarkable. From a man who was completely covered except on the head, with weeping, ulcerative, open lesions of mycosis fungoides, he soon changed to one who had nodular, dried-up scabs in their place. Undoubtedly the cause of this hyperpyrexia was toxin liberated by bacterial growth; secondary infection was present in many of the lesions. This supposition is in keeping with Howell's theory previously mentioned. My impression of the cause of the postpyretic improvement is the protective mechanism of fever. Most bacteria are killed at a temperature slightly above that of the body, especially the streptococcus of erysipelas and the bacillus of anthrax, which are attenuated greatly above 40 and 42 degrees C. There was also the possibility of a copious formation of immune



bodies which did their part in antagonizing the agent of infection.

The case is considered of interest, not only for the hyperpyrexia present, but in connection with work that is now being done in an effort to combat sepsis and infection by increasing the body to "bacterial death temperatures" through mechanical means. The author, after a review of the literature believes that this is probably one of the highest temperatures compatible with life that has been recorded.

CASE HISTORY

S. G. A., Male, age 63, married, admitted, April 15, 1927. Chief Complaint: "Many sores all over body of ten months duration." Family History: Mother died of cancer of breast and erysipelas at 53; negative otherwise. Married History: Wife living at 70 with pulmonary tuberculosis and senile dementia. Past History: 0-23 Michigan; 23-26 New York; 26-48 Chicago; 48-55 Orient; 55 to Philippine Islands and California. Diseases: Measles, mumps, in childhood; rheumatism 30-48; malaria 20-22; typhoid fever 30; Neisserian infection 23; influenza 60. Operations: Cyst removed from back of neck at 53. Weight: Best at 205 pounds at 53 years with average 175; weight when admitted: 165. Symptoms: Bilious headaches throughout life; choiroiditis and failing vision at 23; severe burning pain in eyes for many years; mastoiditis at 35; all teeth out at 61 as teeth seemed to crumble in the two years preceding the present illness. Cardiorespiratory: Dyspnea with moderate exertion since 59. Gastro-intestinal: Occasional gas; tenesmus at age 20-30 with diarrhea, mucus and blood; "nervous stomach"; Doctor Murphy of Chicago told him he had gall stones. Genito-urinary: Nocturia past 3-4 weeks with pollakiuria. Central Nervous System: Nervous breakdown with anemia at age 35.

*Present Illness.*—About four years previous to admission had generalized papular and vesicular rash with severe pruritus; recurrence and clearing several times; one year previous to admission noticed nodules all over body with itching, burning and pain. These finally ulcerated; for past nine months had weekly x-ray treatments all over; some lesions grew smaller; has had milk injections, Fowler's solution; ammoniated mercury ointment, and x-ray.

*Physical Examination.*—Typical picture of mycosis fungoides in a man fairly well nourished and weighing 165 pounds. Lesions all over the body, in all stages; negative otherwise, except impaired breath sounds both apices and systolic murmur at apex; blood pressure 148 over 90.

*Course.*—Gradual decline with loss of weight, increase in severity of lesions except after high temperature as mentioned; died September 13, 1927.

*Laboratory.*—On admission urine negative; red blood cells, 3,970,000; white blood cells, 5800; hemoglobin, 60 per cent with polymorphonuclears 65 per cent, lymphocytes 22 per cent, and eosinophils 11 per cent; central pallor of red blood cells. Stool negative. The white blood cells varied from 5800 to 13,850 throughout the course. The urine showed albumin very faint trace the first two months, then granular casts for the rest of the illness. The red blood cells went down to 2,440,000 three months after admission but averaged around 3,500,000. The hemoglobin did not go below 60 per cent. Wassermann negative; blood cultures, all six negative, including one at height of fever and two days later. Sputum negative for acid-fast bacilli. Electrocardiogram showed sinuauricular tachycardia.

*Temperature.*—April 12 (admission) to 30 averaged 36.8 to 38; April 30 to May 3, 38 to 43.7; from then until discharge varied from 36.5 to 39 with one rise to 39.5. Pulse: 80-110 per minute with gen-

eral average of 100 except at highest fever when it went to 140. Respirations: general average 25.

*Course.*—For sixteen days after admission patient had been running a temperature of 36 to 38 degrees with only afternoon or evening rises. He had received as drug therapy, only sodium cacodylate every other day, for a total of seven injections intramuscularly. He had two doses of x-ray therapy seven days apart, the second one administered the day before the temperature rise started. Tincture of digitalis was started the day of the rise in temperature. On April 28th, he complained of itching all over his body, and inability to sleep. The next afternoon he had a severe chill, pain in his joints and a sleep of four hours; this was followed by a second chill, after which he went to sleep for the night. On the 30th, he complained of pain in the lumbar region, loss of appetite and malaise, but he slept most of the night. In the morning of the first of May he had another chill, flatulence, stupor or sleep until 9:30 P. M. He then woke up and was semi-delirious until 2 A. M., when drug and intravenous therapy caused him to sleep the rest of the night.

The temperature data for the period April 29th to May 3rd included:

| April | 3 a.m. | 7 a.m. | 11 a.m. | 3 p.m. | 7 p.m. | 9 p.m. | 12 m. |
|-------|--------|--------|---------|--------|--------|--------|-------|
| 29    | 37.4   | 36.4   | 37.4    | 37.8   | 40.6   |        |       |
| 30    | 37.4   | 37.2   | 37.6    | 39.0   | 40.0   |        |       |
| May   |        |        |         |        |        |        |       |
| 1     | 38.4   | 37.8   | 37.6    | 40.2   | 42.0   | 43.7   | 38.2  |
| 2     | 38.2   | 38.0   | 39.0    | 40.2   | 40.4   |        |       |
| 3     | 37.8   | 39.6   | 39.8    | 39.4   | 40.0   |        |       |

The patient was semi-delirious for twelve hours following the high fever of May first. For several days he would lapse into frequent spells of delirium. Some days later, and from that time on, he could not recall any of the events taking place on the 30th and 1st, except a vague remembrance of a "lot of excitement and people running around with thermometers." It will be noticed from the paragraph above that he was conscious most of the time in the hours of his hyperpyrexia, and fairly rational. He felt a good deal of relief from his intense itching and pain at this time, and for two weeks afterwards there was a marked improvement in his skin lesions. Then decline began and four months later the patient died.

University of California Hospital.

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#### DISCUSSION

PROFESSOR CHAUNCEY LEAKE (University of California Medical School, San Francisco).—General clinical experience in recognizing the beneficial aspects of moderate fever in an acute infectious process has been rationalized through the interesting studies of Barbour. It is interesting to observe that three hundred years ago, in the first publication of his demonstration of the circulation of the blood, William Harvey implies that fevers are clinically helpful to the patient. The successful employment of Cinchona bark in combating the symptoms of malarial fever—one of the most striking aspects of which is the marked reduction of the fever—apparently turned the attention of the medical profession away from Harvey's implication. Efforts were continually made for many decades to find the same type of agents for lowering fever in general.

With the rise of organic chemistry during the nineteenth century, this search led to the development of the coal tar antipyretics, which were first introduced as substitutes for quinin. Their general success in lowering fever delayed, until comparatively recently, the acceptance of the opinion that an ordinary fever reaction is of benefit to an individual in an acute infectious process.

It seems now to be generally recognized that, unless a fever rises too rapidly and to too high a point, the antipyretic doses of certain fever reducing chemical agents should not be employed because of the danger of leading to fatal collapse. The developing studies in colloidal chemistry should lead to a much better understanding of the factors involved in fever production, and in the mechanism by which antipyretic drugs act. The work of Woodyatt and Barbour indicates the significance of water in these processes. Apparently the provocative poison in an acute febrile reaction leads to cellular changes which result in the colloid materials of the cell binding more water. Removing free water from the blood reduces the blood volume, resulting in a shunting of blood from the periphery to the internal organs. The skin becomes cooler which stimulates the nervous reaction against cold, further exaggerating the process of vasoconstriction and blood concentration. The effectiveness of the antipyretics has been shown by Barbour to be due to their ability to draw water from the tissues into the blood and, thus, to lead to a more normal water balance between blood and tissues. This makes it possible for heat to be lost through evaporation from the skin and the lungs. The recognition that water is the central factor in the regulation of body heat is of fundamental importance in the understanding of the factors involved in hyperpyrexia and the use of antipyretics.

The case reported by Doctor Behneman is extraordinary in the rapidity and extent of the rise in temperature. If the fever reaction is involved in the development of immunity, and if the skin is the significant organ in this process, Lusk's dictum takes on added interest: "The organism preserves the tropical temperature of its cells at the expense of a

metabolism which is proportional to the skin area of the individual."

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NEWTON EVANS, M. D. (College of Medical Evangelists, Los Angeles).—The report by Doctor Behneman is of much interest because of the unprecedented high temperature followed by recovery and because of the subsequent marked clinical improvement which may have been due to the hyperpyrexia. It presents opportunity for discussion of the relation between temperature elevation and the reaction of the body to infection and the immunity reaction.

Direct clinical observations upon patients with severe infections and high temperatures do not yield evidence for final conclusions on the question of the value of fever or the usefulness of antipyretic measures in treating infectious disease. The fact that certain overwhelming infections are not accompanied by a rise but by subnormal temperature and the evidence of such cases as the one here reported, suggest that the influence of the febrile reaction is a beneficial one.

On the other hand, the conception that the fever in itself is a direct effect of the pathogenic agent or possibly a noxious influence in the disease process has led to the devising of means intended to combat it. Experience in the employment of the two principal classes of these antipyretic agents has led to the generally accepted conclusion that the effects of the coal tar derivatives are not on the whole favorable, while those of judiciously applied hydrotherapeutic measures are entirely helpful. To conclude that the reduction of temperature produced by this latter means is the factor of importance in its beneficial influence is not necessarily correct. It is probable that more help is accomplished by its tonic effects upon the nervous system, the circulatory system, and upon metabolism.

Reported experiments upon animals and *in vitro* throw light upon the question. The general conclusion from these has been that the formation of antibodies is favored by artificially maintaining the body temperature at abnormally high levels, and that certain immune reactions take place more readily and completely in the test-tube at the higher temperature than at normal body temperature. Again, the fact that numerous pathogenic bacteria are inhibited in their growth by fever temperatures would fit into the picture of the beneficial effects of fever.

The experimental facts lead to the conclusion that maintaining the body temperature at a high level for prolonged periods is not in itself harmful to the body, but that such temperatures favor the immune reactions. One is justified, therefore, in maintaining that a moderate degree of fever is beneficial and should not *per se* be combated.

If one should attempt to define the limit of temperature beyond which, if possible, fever should not be permitted to rise, probably 104.5 F. or 105 F. should be regarded as the extreme limit.

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DOCTOR BEHNEMAN (Closing).—The therapeutic pendulum has most assuredly swung away from the use of antipyretic drugs, in the recent past. Their use in hospitals has almost been abandoned, and eventually we hope the laity will learn of the damage that lurks in coal tar products. The rapid rise of shock therapy, wherein the desire is to create a pyrexia, is justifiable physiologically and is universally on the increase. The malarial treatment of paresis is a marked example; the use of sterile milk and typhoid organisms is of proven merit. It is upon this principle that diathermy is of such great benefit in bringing a "local pyrexia" to definite regions of the body. As usual, in our fundamentals of therapy we eventually revert to nature's own protective phenomena.

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Coronado Meeting Reservations.—Early reservation at Hotel del Coronado by northern members is urged by the Committee of Arrangements.



## TRAINING OF ANESTHETISTS IN GREAT BRITAIN\*

By CLARE MALONE, M. D.  
*San Francisco*

IT has been interesting to me, a stranger coming to the United States, to observe the difference in training and methods in the specialty of anesthesia in the United States, in Great Britain, and Europe.

### ADMINISTRATION LIMITED TO PHYSICIANS

In Great Britain the specialty is mostly in the hands of men physicians—it is, of course, strictly illegal for anyone other than a registered physician to administer an anesthetic. In Kings College Hospital of the University of London, none of the anesthetic staff were women, but of course, with the increasing number of women now entering the profession, they are also entering the specialty of anesthesia, and it is becoming less rare in England to see women on the anesthetic staffs of the various hospitals. Training in anesthesia is very thorough and interesting, and students are very proud of their attachment to the anesthetic unit—membership of which is proclaimed to the world by attaching tongue forceps (which are never used) to their coats.

In the large London hospitals and training schools most of the work done is what is called in America "clinic work." To each of these hospitals is attached, as is here, a staff of physicians, surgeons, and specialists, and all their work done in these hospitals is absolutely free.

### TRAINING OF STUDENTS

The students are assigned to work in groups, each group forming a unit—surgical, medical, obstetrical units, and so on.

A surgical unit consists of first, the surgeons and anesthetists equal in power and authority; second, the surgical residents; third, the house surgeons, and then the students, a group of usually four to six. On the whole, counting in the general gynecological and specialist surgery, students are eighteen months on different surgical units, and during this time all the anesthetics are given by the students, under the direct supervision of the various members of the anesthetic staff of that unit.

Service is in strict rotations from an alphabetical list hung up in the dressing rooms. As the surgeons of a unit operate at least three afternoons a week, doing from four to five major operations each afternoon, each student gives a goodly number of anesthetics during these eighteen months.

At 4:30 on the afternoons in the week (usually three) when our unit covered the casualty department, we were responsible for the minor operations performed every afternoon at that time in this department. These minor operations include removing nails, sebaceous cysts, lipomas, opening infected fingers, arms, etc. The operations are

performed and the anesthetics given by the students under the supervision of the chief surgical resident, a man of some years' graduation and experience, and of the resident anesthetist.

For the short operations we gave nitrous oxid. Our duties on the anesthetic unit did not begin and end in the operating room—they began with the preoperative examinations of our patients, his preoperative medication, the subsequent administration of the anesthetic, and ended after his safe return to bed and observation of his postoperative condition. All this, as well as his behavior during anesthesia and operation, and the quality and quantity of anesthetic used were entered in the anesthetic records of the operating room.

### SPECIAL INSTRUCTION

During this time we had lectures from the staff on the pharmacology, physiology, mode of action and administration of anesthetics. We were well examined in such things during our contact with our teachers in the operating room.

I may add that of course the students never gave an anesthetic except under the direct supervision of the staff. At our examinations for our university degrees we were questioned both in our written and our practical examinations on anesthesia. I remember when I took my membership of the Royal College of Surgeons of England, being very carefully examined in all of the practicals on anesthesia.

A physician who wishes to specialize in anesthesia when he has taken his degrees obtains a post in one of the hospitals as assistant resident and after six months' service is made resident anesthetist. In this way he gains further very useful experience and has as an added advantage the presence of the honorary anesthetists, as we called our staff, to help and advise him in his difficulties. He comes in contact, too, with the surgeons who, when he branches out for himself, will give him their private work to do.

### ANESTHETICS USED

To the anesthetics used in Great Britain, I will refer only briefly. Chloroform is very rarely used. I saw it given a few times; each time by our chief, and the student whose turn it was stood by and watched.

Ether is mostly used in the big training hospitals. Here the patients are the very poor, the hospitals are not well off either, and gas and oxygen is comparatively expensive.

Gas and oxygen is being increasingly used, gas, oxygen, ether sequence, particularly. In our minor surgery nitrous oxid was used, and very often used alone. Everything was ready for quick operative procedure; the patient was given pure nitrous oxid until deeply cyanosed when it was stopped; the mask removed, the operation performed, and never with any fatality.

Ether is, however, the most largely used anesthetic, with gas and oxygen a good second. Ether is given by both the open and closed methods; for the latter, Glover's or Shipway's apparatus is used.

Saint Luke's Hospital.

\* Read before the Anesthesiology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

## BACILLUS DYSENTERIAE\*

## SOME OBSERVATIONS ON A CALIFORNIA STRAIN

By JEANNE LOMMEL, M. D.†  
*San Francisco*

IN America, cases of dysentery due to the bacillus of Sonne (see Group 3 in later classification) have not attracted the attention of the clinicians, probably due to the fact that the clinical manifestations are not very marked and that a bacteriological diagnosis is frequently not attempted. During the past twelve years the bacillus of Sonne has been observed in various countries. After the first publication of Sonne,<sup>1</sup> d'Herelle<sup>2</sup> isolated the organism in France; Thjötta<sup>3</sup> in Norway; Oehnell<sup>4</sup> in Sweden; Mita<sup>5</sup> in Japan; Patterson and Williams<sup>6</sup> in Australia; Smith<sup>7</sup> and Channon<sup>8</sup> in England, the latter from a patient who had contracted dysentery in Egypt. It is quite probable that carriers of this organism have also reached this country.

## A CALIFORNIA STRAIN

A strain has been recently isolated in this laboratory from a child at the University of California Hospital. The patient gave no previous history of illness, but on admittance presented for a few days mild diarrhea with blood and mucus in the stool. Another child in the same family had identical symptoms. It is of interest that a relative, returning from Norway, had had repeated slight attacks of dysentery shortly before the grandchildren became ill.

Specimens of mucus plated on eosin methylene blue agar revealed numerous colonies of non-lactose fermenting Gram-negative bacilli which were not agglutinated by a polyvalent antidysenteric serum (English type strains, Andrews and Inmann).<sup>9</sup>

## CHARACTERISTICS OF THE CALIFORNIA STRAIN

A more detailed study was therefore undertaken. The organism, designated Hin., is a non-motile, nonsporulating Gram-negative rod, which does not liquefy gelatin, coagulates brom cresol purple milk after three days, gives negative Voges-Proskauer and methyl red reactions, fails to blacken lead acetate agar, and produces no indol in peptone water. It forms acid but no gas in glucose, levulose, mannite, l-arabinose, galactose, mannose and maltose; and fails to ferment, even after three weeks' incubation, the following: lactose, saccharose, dulcitate, adonite, inositol, inulin, salicin, and xylose.

The strain is not agglutinated by the following antidysenteric sera: Shiga, Hiss, Flexner and polyvalent. After numerous subcultures on agar and in gelatin, the same results were obtained. A serum prepared on rabbits with the bacillus Hin. had a titer of 1:4000 for the homologous antigen

and a titer of 1:2000 for a strain of paradysentery Sonne No. 31 obtained from the national type culture collection, but no reactions with representatives of the colon-paratyphoid dysentery group. It is, therefore, serologically and culturally identical with the strain "Sonne." A serum titer (1:4000) prepared with the type strain Sonne No. 31 agglutinated the Hin. to the titer limit. In the absorption tests the same specificity was observed. The antiserum Hin. absorbed with either the Sonne strain or the homologous antigen lost its agglutinins for both. The antiserum Sonne behaved in the same manner. Complement fixation tests with saline suspensions also showed that the strain Hin. was identical with the type Sonne.

The Hin. culture is weakly pathogenic for rabbits. In order to prove that the stability of the cultural and the serological characteristics are not altered by animal passage, three rabbits (approximately 2 kilograms in weight) were injected intraperitoneally. One animal which had received five agar slants succumbed to the infection. The infected bacteria were found in the bile, the liver, the spleen, the small intestine, and the mesenteric lymph nodes, but not in the heart blood. The isolated strain exhibited the same biochemical and serological reactions as the parent culture.

## CLASSIFICATION OF THJÖTTA

Thjötta,<sup>3</sup> studying serologically a great number of dysentery strains, proposed the following classification:

*Group 1:* The Shiga type (nonmannite fermenting, toxic type).

*Group 2:* The Flexner, Strong and Y types (mannite fermenting, atoxic type, pseudodysentery bacilli, Sonne's Groups 1 and 2).

*Group 3:* Group 3 of Sonne (the new member of the mannite fermenting types).

## COMMENT

The strain Hin., isolated in San Francisco, has the cultural and the serological characters of Group 3, corresponding also to the Group 3 of Sonne. Its biochemical characters also are the same with the exception that saccharose is not fermented.

Hooper Foundation, University of California.

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THE LURE OF MEDICAL HISTORY

MALPIGHI AND LEEUWENHOEK

The Early Microscopists

By WILLIAM DOCK, M.D.  
San Francisco

ALTHOUGH magnifying lenses have been found in the ruins of Nimrod's palace at Nineveh, it was not until the seventeenth century that anything like a microscope was used. The inventor's identity is uncertain, but Hans and Zacharias Janssen (1608) and Cornelius Drebbel (1621), all Hollanders, are the earliest proved claimants of this honor. The first microscope was a pair of lenses with a device to hold it at a fixed distance from the object to be examined. These toys were known as "vitra pulicaria," or flea glasses, from the objects most frequently viewed in their day. Modifications of this simple device made possible the biology and medicine of today, for the microscope is incomparably the most important and fruitful instrument which man has built to study himself and his environment.

We know nothing of the microscopes used by Malpighi; they may have been only simple lenses held in the hand, but Leeuwenhoek's twenty-six microscopes, bequeathed to the Royal Society, were arrangements by which a small lens, centered in a silver plate, was held over the object, fixed at a proper distance by a simple set of brass screws and plates. With such rude ships did these pioneers explore a new world, and we are astonished by the thoroughness of their exploration and the accuracy of their reports and charts.

Their lives are of true scholarly simplicity; they lived, saw, wrote and died. Marcellus Malpighi, born in 1628, graduated at Bologna in medicine, with a thesis on Hippocratic medicine (then unpopular because of the rise of iatromathematical and chemical schools). He soon had a chair at Bologna, and here he lived, practiced and studied most of his life. The more remunerative positions at Pisa and at Messina he held for three and four years each, returning because of poor health, and his last three years were spent in Rome as physician to Pope Innocent XII. Tradition makes him a rather unsuccessful practitioner, but the facts seem to have been otherwise. The quiet of his life was somewhat troubled by debates with his early teacher, Borelli, and a family feud with the Sbaraglia. The kind and gentle physician never enjoyed good health and his death at sixty-seven cut short a life of great accomplishments.

Anthony van Leeuwenhoek was neither a university man nor a physician, but a modestly educated son of a well-to-do family in Delft, near Rotterdam. He was well founded in mathematics, and at sixteen was bookkeeper for a clothier in Amsterdam. At twenty-two he married and returned to Delft. He undoubtedly had a comfortable income from the family breweries and perhaps was engaged in trade; for the last thirty-nine of his ninety-one years he was on the town books as chamberlain (in modern parlance

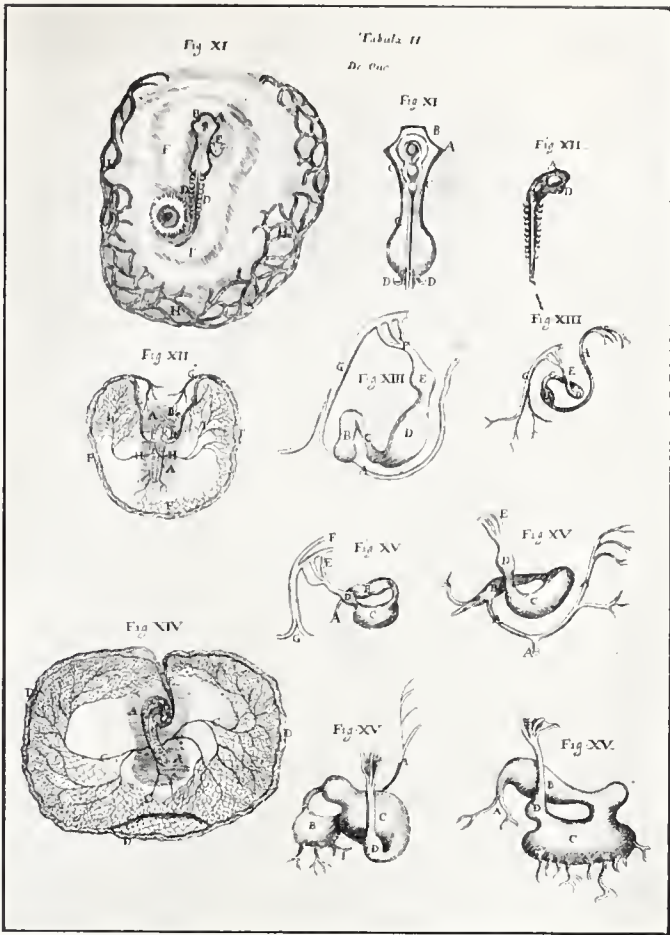


Plate 1.—The development of the chick embryo and its cardiovascular system, an illustration of Malpighi's letter to the Royal Society of London, *De Formatione Pulli in Ovo*. From the Royal Society edition of the collected works, 1686.

janitor) of the council hall, at a yearly salary of \$126. This was probably an honorary position with no actual duties involved. We know little of his life and nothing of how he came to microscopy, save that he had industry and curiosity. The 237 microscopes he made attest not only his energy, but a rare degree of mechanical and optical skill. He was honored by his fellow citizens and foreign societies, and was visited by Peter the Great, Czar of All the Russias. He died in 1723, and was buried in the Reformed Church in Delft, where rested the bones of Admiral van Tromp, who had swept the British fleet from the narrow seas.

These were quiet unadventurous lives, but the leisure hours of both men were given to such adventures, such novel and exciting worlds as no Magellan or Pizarro ever attained. They crossed the divide which had separated the visible from the invisible, and wandered far and wisely in the vast region thus revealed. Their adventures are recorded in letters to friends and to the young and vigorous Royal Society in England. To this society, Leeuwenhoek sent 375 letters, the first submitted by De Graaf in 1673, seven years before the microscopist's election. Malpighi sent his first paper to the society after being made a member in 1668. More learned than his younger Dutch fellow member, his contributions are less chatty, less speculative; more the accounts of a prospector than of a traveler. His skill in devising experiments and constructing instruments was



less, but he began the study of the structure of organs, and his accounts of the pigmented layer of the skin, of the glandular structure of the liver, and of the structures visible in the spleen and kidney, were accurate and have left his name firmly linked with the histology of these tissues. He also studied the structure of silkworms, of plants (recognizing their sexual differentiation and the significance of growth rings), and of bone, teeth, brain and lung. He founded the science of embryology by his serial observations on the development of the chick. Of final importance, he first saw, described and recognized the significance of capillaries, those minute passages from artery to vein which Harvey postulated, but never seemed anxious to demonstrate. To the physician of the day, unimpressed by all this impractical delving, he demonstrated that the clotting of blood and the formation of plastic exudates in the pleura were similar phenomena and the mural thrombi in heart and vessels were formed from clots, and were not animal parasites or polyps.

Leeuwenhoek's observations, more minute and continued over twice as long a period due to Malpighi's early death, include an enormous sweep—bacteria, plants, insects, fishes, mammals, and man. He also made numerous observations out of the microscopic realm on digestion, perspiration, magnets, calculi, and the like. The alkaloids in tea, the insects of the cochineal, then an important dye, the striations in muscle, the layers of the gut were first seen by him. He studied sheep flukes, and spermatozoa from every animal he could, including bees and whales. They had been seen before, but he recognized their true character and importance in generation. He studied the animalculae of the furred tongue and the squamous cells of the skin, but took particular delight in the rich bacterial flora of the gums and teeth.

He was not the first to see the corpuscles of blood, but he first succeeded in seeing the blood stream, dividing into more and more minute vessels until it reached capillaries admitting only corpuscles in single file, complete the trip from artery to vein. This was seen in the tadpole's tail; in seeking this goal he had tried the cock's comb and gills, the rabbit's ear and the bat's wing. Having succeeded he made many observations, particularly on eels' tails, and saw the blood corpuscles change color in the capillaries, was astonished by the vascular reactions to bruise and to vessel obstruction, and finally saw anastomoses open up around the occluded vessel.

The Royal Society published the collected works of both of these microscopists during their lifetime and it is a pleasant lesson in the unity of science that the shrewd and busy Englishmen so quickly appreciated the value of these observations. We can imagine the delightful meetings at

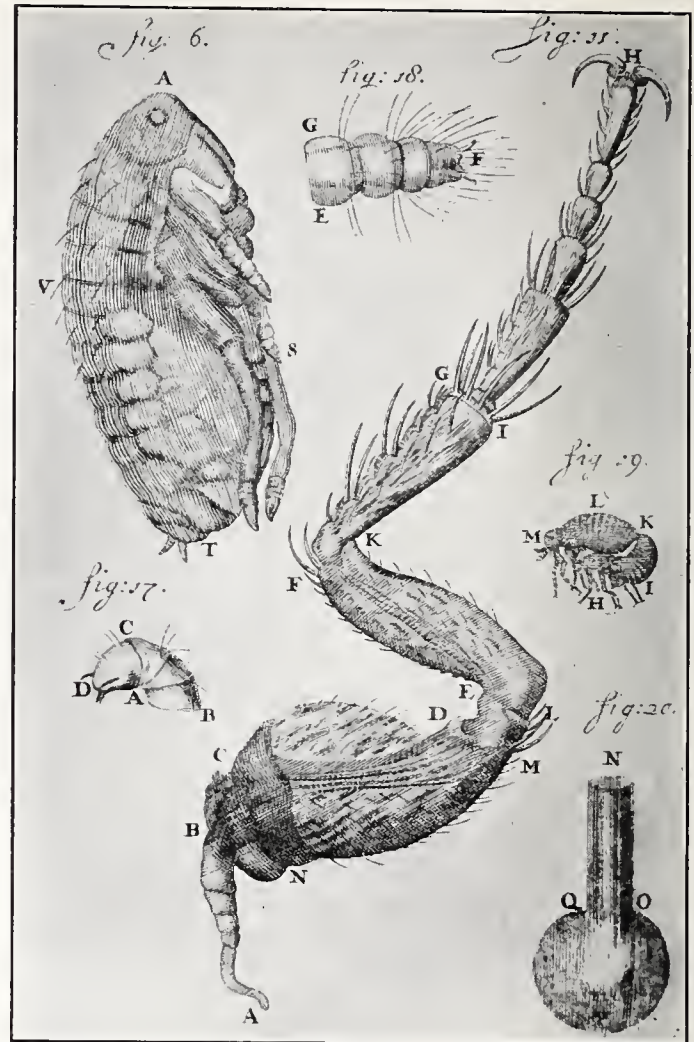


Plate 2.—The flea's leg, as seen by Leeuwenhoek. This is part of a plate of excellent drawings, illustrating the finer anatomy of the flea and its development from the egg through larval stage to adult form. Fig. 6 is the pupa of the flea; 17 and 18 are details of the larval structure; 19, of the fertilization of the female flea, M. L. K. From the Letters to the Royal Society in London, Dutch Edition, Volume IV, Delft, 1694.

which were read the cautious reports of the Italian and the naïve and enthusiastic observations of the Hollander. What could have been more human than his account of the flea's leg? He records that when he, who had been only moderately surprised by his many strange discoveries, looked first at this curious structure, there burst from his mouth the words, "Good God, what are all the marvels in such a small creature!"

Stanford University School of Medicine.

The Physician.—There are men and classes of men that stand above the common herd: the soldier, the sailor, and the shepherd not infrequently; the artist rarely; rarelier still, the clergyman; the physician almost as a rule. He is the flower (such as it is) of our civilization; and when that stage of man is done with, and only remembered to be marveled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race. Generosity he has, such as is possible to those who practice an art, never to those who drive a trade; discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments; and what are more important, Herculean cheerfulness and courage. So it is that he brings air and cheer into the sickroom, and often enough, though not so often as he wishes, brings healing.—From the Dedication of the "Underwoods"—Robert Louis Stevenson.



# CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

## LATE POSTTYPHOID ABSCESS

### CASE REPORT

By CLEMENT H. ARNOLD, M. D.

*San Francisco*

THE modern developments in public hygiene, immunology and prophylactic health promotion have placed typhoid fever, with several other of the more frequent decimating horse-men of death, almost into the limbo of complete forgetfulness.

There are, however, still a sufficient number of cases to make further study worth while.

The case of typhoid abscess herewith reported is later in its manifestation than any case I have been able to find in the literature which has appeared since 1880.

### CASE REPORT

Mrs. I. H., married, aet. 39; mother of two healthy children, presented herself for examination complaining of a painful lump in her left side which was irritated by the back of her chair in which she sat while operating a switchboard as telephone girl.

Her only severe illness was in February, 1908, when she had typhoid fever for three months without any serious complications. At that time she had neuralgic pains at the site of her present complaint. These ceased with her recovery. Since then she has had no other serious illness.

Five years ago, 1922, she had a slight pain in the area under consideration and felt a small lump there. Lump was tender. She paid no attention to it as it did not increase in size and was not particularly uncomfortable.

Recently, however, October 1927, she noticed that it was becoming more painful and she could feel it more easily than previously. Examination revealed a small hard mass freely movable between the seventh and eighth rib in the posterior axillary line on the left side. It was tender to palpation and quite deeply placed. She was advised to have it removed if it caused very much inconvenience during the next week. There were no enlarged glands. All laboratory examinations were negative. A tentative diagnosis of small encapsulated posttyphoid abscess was made at the time.

Two weeks later she returned saying that she had been confined to bed for a week because of a cold and that the mass had increased in size greatly, despite frequent hot applications and mustard plasters. On examination it was noted to be about the size of a large grapefruit and distinctly fluctuant.

In November, 1927, the mass was incised under gas anesthesia and a thick-walled fibrous cystic structure opened from which escaped about 400 cc. of greenish, bloody, ichorous pus.

The wound was packed and later irrigated with Dakin's solution, and healed completely without complications by the first of March, 1928.

The cystic cavity was apparently unconnected with any rib as no exposed or eburnated bony area was found, despite careful exploration.

A pure culture of typhoid bacilli was recovered from the pus at repeated examinations.

The patient's Widal, blood, urine, and stool were consistently negative for typhoid bacilli.

Quite in keeping with the bone and other tissue

sequelae or complications of the posttyphoid state, the Widal, blood, urine and stool cultures were negative.

### COMMENT

The typhoid bacillus is not infrequently a pus producer either alone or in combination with staphylococcus or other micro-organisms. Ulceration of the larynx is not uncommon during the disease, and parotitis is another complication which occurs. Otitis media is present in 2.5 per cent of all cases according to Keen, and may persist long after recovery. Bennet reports two cases in one of which the typhoid bacillus was isolated from the pus of the middle ear four years after recovery from typhoid fever.

One of the most frequent localizations of the typhoid bacillus, both during and after the disease is in or about the bones. The organism is present in the bone marrow throughout the disease, and is characteristically localized there in experimental work on animals. After recovery, periostitis, necrosis or caries may affect the bones.

Of these, periostitis is most frequent, and the tibia the bone most often affected, after which the ribs, sternum and vertebrae may be involved. The bone infections may be multiple and last for long periods of time. Fogh isolated the bacillus from a bone abscess twenty-three years after recovery. Others have found it at similar intervals, though there has been no report of one in the soft tissues at such a long interval.<sup>1 2 4 5 6 7 8</sup>

Webb-Johnson considers that bone lesions are rare during the course of typhoid and may be classed as sequels rather than as complications.<sup>2</sup>

With the exception perhaps of Fogh's case,<sup>1</sup> and that of Von Bissilick,<sup>3</sup> the case presented here is the oldest posttyphoid abscess noted in the literature since 1880. It is rather remarkable that the original nodule should not have made itself manifest until five years ago, and that its recent fulmination should have been provoked by an intercurrent illness such as a severe cold. This latter consideration would predispose us to seek for a secondary invader accompanying the typhoid bacillus, but such was not the case as the culture was returned pure typhoid in each instance.

The patient has been well for two months, and during healing the secretions from the granulations were sterile.

490 Post Street.

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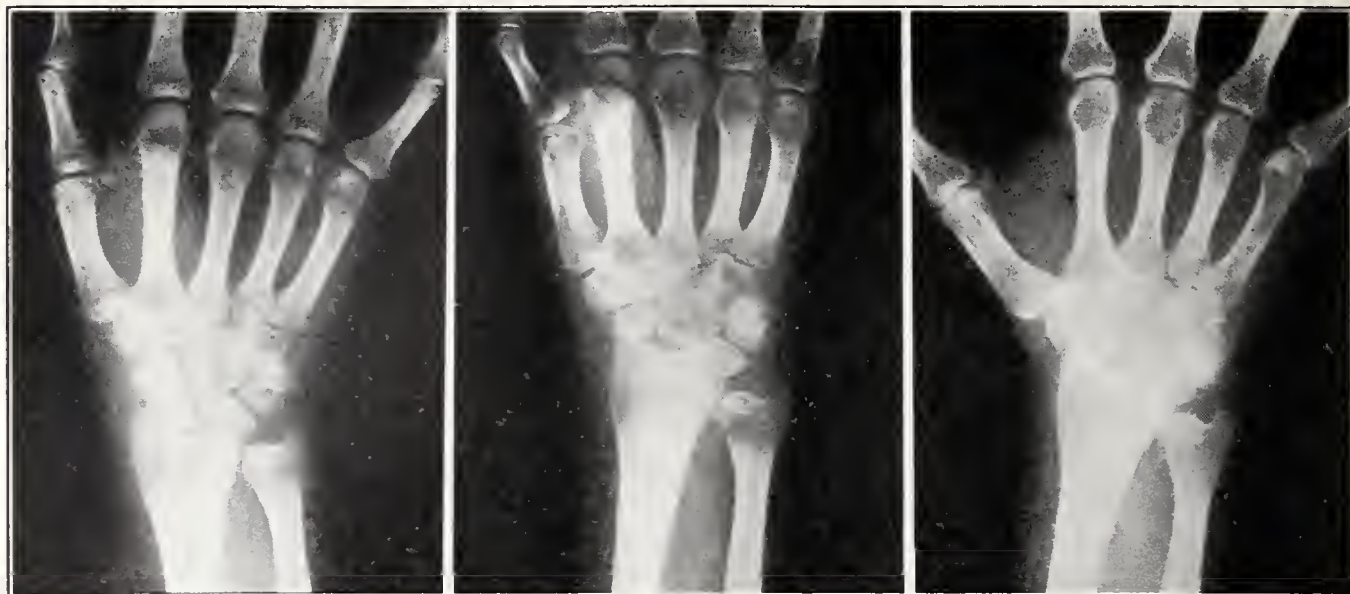


Fig. 1.—Roentgenogram of carpus before operation, showing fracture line carpal navicular.

Fig. 2.—Carpus six months after operation.

Fig. 3.—Carpus one year after operation.

## ISOLATED TUBERCULOSIS OF THE CARPUS—ITS DIAGNOSIS AND TREATMENT\*

### CASE REPORT

By MERRILL C. MENSOR, M. D.  
San Francisco

IN the past few years, with the advent of better roentgenological technique and interpretation, injuries to the carpal navicular bone which were formerly treated as "sprains" of the wrist are now more frequently, properly diagnosed. Our current literature often gives reference to fractures of this bone and its treatment. But with all this at our command, roentgen evidence of fracture is often scanty or debatable, and with clinical symptoms pointing to involvement of the navicular even with a definite traumatic history, I believe isolated inflammatory conditions of the carpal bone must be considered in our differential diagnosis.

After carefully reviewing the literature of the past twenty-five years, I find inflammatory processes involving the carpal navicular have been reported on three occasions only.

(1) Wollenberg reported a cyst of the navicular, ascribing it to a fibrous osteitis, resulting in subsequent fracture of the bone.

(2) Preiser published a series of cases showing a posttraumatic rarefying osteitis resulting in spontaneous fractures.

(3) In 1911 Deutschlander described an isolated tuberculosis of the carpal navicular. The bone was subsequently removed at operation, the wound healed well and the patient had an uneventful recovery.

The foregoing are the only cases quoted of inflammatory processes involving this bone.

In view of the rarity of cases reported and the difficulty in diagnosis, I believe it to be of interest to report the following case of isolated tuberculosis of the carpal navicular with the hope that

recalling to the minds of the profession the possibility of isolated inflammatory involvement of the scaphoid may aid in classifying those occasionally chronic, painful wrists that have frequently progressed undiagnosed until the pathological involvement has become widespread and evident.

### CASE REPORT

J. H., school girl, age 14, entered the surgical clinic on July 1, 1926, with a history of having fallen, landing on the palm of her right hand, which was bent sharply backwards. Immediate pain, swelling and disability followed. Routine anteroposterior and lateral x-rays taken at this time were negative, but because of the pain and swelling, the wrist was splinted. Diagnosis, sprain of right wrist. Three weeks later the splints were removed and the patient discharged.

On August 28, 1926 (seven weeks following the injury) the patient returned still complaining of pain in the wrist joint. Because of the persistence of the pain she was referred to the orthopedic department

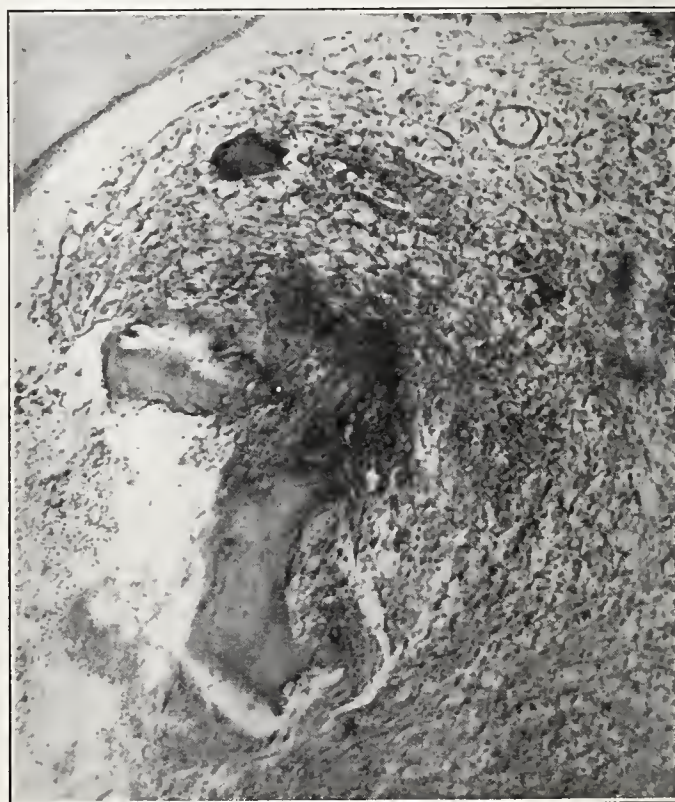


Fig. 4.—Photomicrograph showing typical tuberculous granuloma formation.

\* From the Department of Orthopedic Surgery, Stanford University Medical School, and the Orthopedic Service of Mary's Help Hospital, San Francisco.

\* Read before the Industrial Medicine and Surgery Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30-May 3, 1928.





Fig. 5.—Hand one and a half years after operation showing range of motion.

for examination and advice. The following facts were elicited:

Family history, negative. Aside from the usual exanthemata of childhood, the only essential point revealed in her past history was the fact that eight months previous (January 1, 1926) she had been under observation in the pediatrics department for an acute cough with hemoptysis. X-ray of the chest at that time disclosed a pleuritis of the right base. There was no evidence of effusion; repeated sputum examinations were negative for tuberculosis; and x-ray taken three weeks later showed the chest negative and the apices clear. There had been no cough or pulmonary symptoms since and patient was apparently in excellent health. Physical examination on entering the orthopedic service was negative aside from the condition of the navicular bone.

Examination of the right wrist showed no gross deformity or change. There was localized tenderness over the navicular; no swelling, increased heat or skin changes. Because these are typical findings in fracture of this bone and because of the definite traumatic history and continued pain, the patient was sent for special x-ray studies of the navicular. These were absolutely negative. The wrist was immobilized in a plaster of Paris splint, with the hand in dorsi flexion, with immediate relief of symptoms.

One month later (September 18, 1926) limitation was still present with definite muscle spasm. The findings were negative for local heat or abnormal swelling. At this time the whole carpus seemed to be involved, the process characterized by rather generalized sensitiveness. I formed the impression that this probably was an infectious arthritis. On this basis further x-rays were taken which were negative, and a thorough search for foci of infection carried out without results. Blood Wassermann was negative and gonococcal infection was excluded. Immobilization in the plaster splint was continued. The patient was watched closely with apparently no change in either the pain or the physical findings. This condition continued until October 28, 1926 (four months after the initial trauma), when x-rays showed a definite irregular "fracture" line through the middle of the navicular. We were nonplused and unable to understand why this fracture had not previously been demonstrated. After reviewing the earlier films we concluded that owing to the technical difficulties of obtaining pictures of the navicular due to its contour and position, the fracture had been present, but had not been demonstrated in the picture. My former impression of an infectious arthritis was again considered, but the picture revealed nothing of this nature and I believed that had this been an early arthritis of the carpus after four months we should have seen some photographic evidence of it. The diagnosis

of fracture of the carpal navicular was therefore made and an operative removal of the bone suggested.

**Operation.**—On November 4, 1926, under gas and ether anesthesia the wrist joint was opened by the usual dorsal incision. As the extensor tendons were retracted we encountered a hypertrophic gray thickened synovia over the joint. This was incised and about five c.c. of thick creamy pus exuded through the opening. Cultures were taken and a portion of the abnormal synovia sent to the laboratory for examination. The navicular was then exposed. A definite break in its continuity was observed, the proximal third appearing soft and friable. The portion of the degenerated bone was then freed of its attachments and removal attempted, but because of its consistency it was necessary to remove it in several pieces. The wound was closed in layers without drainage and the wrist immobilized in plaster in dorsi flexion.

**Laboratory Examination.**—(1) The pus, inoculated in a guinea pig, proved to be positive for tuberculosis. (2) Examinations of the synovia and a portion of the navicular bone by Doctor Marquez of the Mary's Help Hospital pathology laboratory showed a typical tuberculous granuloma. Another portion was sent to Dr. Leonard W. Ely of Stanford University Medical School, who confirmed Doctor Marquez' diagnosis.

**Postoperative Course.**—Patient was afebrile during her sojourn in the hospital. Two weeks later the plaster was bivalved and the wound found to be healed *per primum*. From this date until March, 1927, (four months) the immobilization was continued and the patient constantly given local and generalized heliotherapy. The plaster was then removed and she was given free use of the hand. During the first few weeks she complained of some sensitiveness on using the hand and we again considered immobilization. However, the sensitiveness rapidly disappeared.

Examination one year following the operation shows no deformity of the hand in size or shape. Motion is free in all directions. The motor power and musculature are excellent. There are no symptoms nor pain of any kind and the patient is not conscious of ever having had any trouble with the member.

**Comment.**—(1) Reviewing the case on the basis of our operative findings it seems that the fracture shown in the last x-rays was probably a pathological one resulting from the tuberculous disease of the bone and occurred subsequent to the taking of the previous roentgenograms.

(2) Although isolated tuberculosis of the carpal navicular is rare it should nevertheless be considered



Fig. 6.—Comparison of operated and unoperated wrists one and a half years following surgery.



and every effort made to diagnose and treat it in its early stages before it has spread to the other carpal bones, since general involvement gives at best, a poor prognosis and a stiff wrist.

(3) From the results obtained in this case and those reported by Deutschlander it seems entirely compatible even in the presence of free pus to remove a carpal bone that has an isolated tuberculous focus, with subsequent eradication of the disease and the production of a normally functioning wrist.

490 Post Street.

## FLUOROSCOPIC EXAMINATION OF THE PARANASAL SINUSES\*

### SOME CLINICAL NOTES

By ROBERT A. POWERS, M. D.  
Palo Alto

**I**N lung infections, sinus disease is of frequent occurrence. For the past year it has been my practice to fluoroscope the sinuses in all cases of respiratory infection. In fifty-six cases I have made radiograms as a check on the accuracy of the fluoroscopic findings.

Fluoroscopy of the sinuses is not an exact method of examination and in no sense is intended as a substitute for radiography. It is simply a preliminary survey which often points to the necessity for a radiographic examination. That the procedure is well worth while is, I think, attested by the fact that many of our medical men who have been getting radiographic reports with the notation, "There is fluoroscopic evidence of sinus pathology," now accompany the chest request with one for sinus examination as well.

There is nothing new in the method of procedure. A good fluoroscopic bucky grid and good accommodation of the eyes are essential. The antrums can be examined in positions corresponding to the Waters and Granger positions by elevating and lowering the patient's chin. In the Granger position a good idea of the density of the antrums can be obtained by rotating the head from side to side. By rotating the head the ethmoid cells can be projected into the orbit, and gross density in this region is usually apparent. By elevating the chin and opening the mouth the sphenoid sinuses, if large, can sometimes be seen, but one is usually in doubt as to their relative density. The frontal sinuses can hardly be outlined at all.

Gross antrum densities are usually quite readily seen. As a rule one cannot differentiate exudate, granulations and sclerosis. Marginal thickening can often be seen. A large single polyp usually stands out quite distinctly. I have seen no fluid levels on the fluoroscope.

Most of the examinations were made on young people with a recalcitrant chronic bronchitis. A large percentage were university students with stubborn respiratory infections. A surprisingly large number were found to have gross sinus infection. The cases were not entirely consecutive. An attempt has been made to determine what value (if any) there is in the use of the fluoroscope in looking for unsuspected sinus pathology during the routine screen examination of the chest.

Of fifty-six cases examined by both screen

and plates, sinus disease was suspected in forty-four fluoroscopies and present radiographically in thirty-three. In eleven cases sinus pathology was suspected on the screen and not present on the plate. Poor accommodation of the eyes was probably responsible for most of these positive errors. Not a single case of gross antrum pathology showed negative on fluoroscopic examination.

The classes of cases examined and the percentage of positive sinus infections were as follows:

Of thirty-seven cases of acute and chronic bronchitis twenty-one showed positive sinus infection.

Of ten cases of suspected tuberculosis four showed sinus pathology.

Two out of two cases of bronchopneumonia showed antrum infection.

Of two postpertussis cases one showed antrum involvement.

One case of pleurisy had negative sinuses.

One case of Hodgkin's disease showed extensive sinus involvement.

One case of lung infarct showed antrum infection.

An analysis of the tabulated results in this small series brings into emphasis two important clinical points:

1. A fluoroscopic examination of the chest should be accompanied by a fluoroscopic survey of the paranasal sinuses (where a radiographic examination of the latter is not intended).

2. Sinus pathology should be searched for in all cases of respiratory infection.

Medico-Dental Building.

## PERFORATING EYE INJURIES OF YOUNG CHILDREN

### REPORT OF THREE CASES\*

By FRANK H. RODIN, M. D.  
San Francisco

**R**ECENTLY we reported three cases of injury to the eyeball by air guns and sling shots.<sup>1</sup> Perforating injuries to the eyeball of children are more tragic because they occur in very young children, are usually complicated by traumatic cataracts, and often result in the loss of the injured eye. This is well illustrated by the following three cases.

### CASE REPORTS

**CASE 1. Injury of Right Eye by Butcher Knife—Traumatic Cataract—Iridocyclitis—Enucleation.**—K. F., a girl, age six years, seen August 31, 1926, had received an injury to the right eye by a butcher knife that day while playing with her sister, who thrust the knife into the eye. Right eye intensely inflamed. There was a corneal cut, which had already closed, with prolapsed iris incarcerated in the wound. The cut extended from the center of the pupillary area, vertically downward, through the sclerocorneal margin and for a few millimeters into the sclera. Pupil was small and eccentric downward. No anterior chamber. Lens was milky and there had been escape of vitreous humor through the sclerocorneal cut. Under general anesthesia the prolapsed iris was excised. The patient received 5 cc. of milk parenterally, which was repeated three days later.

Two weeks later the examination showed a vertical linear corneal scar with iris tissue incarcerated in it (leukoma adhaerens). Pupil was small and irregular. A traumatic cataract was present. Eyeball was soft and free of tenderness and injection.

Examination two months later revealed the iris to

\* Read before the Radiology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

\* From the Division of Ophthalmology, Stanford University Medical School.





Fig. 1 (Case 3).—Appearance of the left eye showing the traumatic cataract with the corneal scar. The iris is cut through its width with the lower part of the cut iris incarcerated in the corneal scar (leukoma adhaerens) and the upper part adherent to the anterior lens capsule (posterior synechia).

be adherent to the corneal scar, obliterating the pupil. Eyeball was quiet and soft.

The child was next seen on March 8, 1928, nineteen months after the injury. According to the parents the eye had been free of any discomfort till four days previously, when it became very painful. Examination of the right eye showed marked photophobia and blepharospasm. The eye was blind. There was intense circumcorneal injection. The iris was atrophic and incarcerated in the vertical corneal scar and the anterior chamber was obliterated. The cornea was bullous, with vessels invading into it from the sclerocorneal margin. The left eye, with the exception of being sensitive to light, was otherwise normal.

The right eye was enucleated on account of blindness and pain.

**CASE 2. Injury of the Left Eye by Knife—Traumatic Cataract—Obliteration of Pupil.**—G. S., a girl, age three and one-half years, seen February 3, 1927, had cut her left eye with a knife the previous day while playing in the kitchen. Examination of the left eye revealed a ragged cut starting in the bulbar conjunctiva, about 5 mm. from the sclerocorneal margin, at nine on the clock dial, and extending vertically in the cornea for about 9 mm. The pupil was small, 3 mm. in diameter, and eccentric toward the nasal side. A traumatic cataract was present and the anterior chamber was very shallow. The iris at the nasal end of the wound was incarcerated in the cut. The patient received 2 cc. of milk parenterally. Atropin, 4 per cent, was instilled. Two days later the pupil was dilated to 6 mm. and was eccentric nasally. There was a gradual improvement.

Two months later the eye was quiet. The iris was drawn into the corneal scar obliterating the pupil.

**CASE 3. Injury of the Left Eye by Scissors—Traumatic Cataract.**—C. O., a boy, age five years, seen first on March 20, 1928, had received an injury of the left eye, with scissors, two days previously while playing with a younger sister, who thrust the scissors into the eye. Examination of the left eye showed a corneal wound, which had already closed, with prolapsed iris incarcerated in it. The cut was about 4 mm. long at nine on the clock dial, extending over the sclerocorneal margin into the sclera for 3 mm. A beginning cataract was present. Atropin, 4 per cent, was instilled in the eye. The patient received 5 cc. of milk parenterally. Under general anesthesia the prolapsed iris was excised.

Three weeks later the eye was quiet. The visual acuity showed perception of hand movements. A traumatic cataract (Fig. 1) had formed. The pupil was well dilated, as the patient had been using atropin, 1 per cent. There was a broad corneal scar, 2.5 mm. wide and 4 mm. long, at the place of the injury. The iris, at nine on the clock dial, showed a cut through its width, with the lower part of the cut iris incar-

cerated in the corneal scar (leukoma adhaerens), while the upper part was adherent to the anterior lens capsule (posterior synechia).

#### COMMENT

Perforating wounds of the cornea are seen most frequently in very young children, who have injured themselves, or have been injured by their playmates, by knives, scissors, forks, and needles. There is usually present prolapse of the iris. If the cornea is perforated and has no lacerated edges, the wound closes rapidly, incarcerating the prolapsed iris. Injury to the lens capsule or the lens is very common, with the formation of a traumatic cataract. If the wound is large enough there may be escape of the lens with loss of vitreous humor. If the injury also involves the sclerocorneal margin there may be escape of vitreous humor, as was present in Case 1.

If the wound has become infected, other dangers are added: iridocyclitis, hypopyon, keratitis, endophthalmitis and panophthalmitis. Wounds at the sclerocorneal margin present an added danger because of the frequent injury to the ciliary body, with the possibility of sympathetic ophthalmia in the other eye.

In treating perforating corneal injuries it is most important that the eyeball and the eyelids be properly cleansed. In children this is best done under general anesthesia. The surrounding tissue should be cleaned with soap and water and the conjunctival sac thoroughly lavaged with physiologic saline solution or some suitable antiseptic solution. A solution of mercuric chlorid, 1:5000 may be used. Atropin solution should be instilled to combat any iridocyclitis. Simple uncomplicated incised wounds heal very rapidly. A prolapsed iris should be replaced or excised. The margins of the corneal wound should be trimmed if they are very rough and irregular. A bandage should be applied to the eye and the patient confined to bed. Ice compresses may be applied. If there are any signs of inflammation parenteral injections of milk should be given.<sup>2</sup>

If the injury is so extensive that there is no prospect of preserving an eye in a serviceable condition, enucleation should be done at once.

#### SUMMARY

1. In three cases of perforating injuries to the eyeball of young children, two were caused by knives, and the third by scissors.

2. In one case enucleation was performed, nineteen months after the injury, for blindness and a painful eye.

3. In the second case there was complete obliteration of the pupil, the iris becoming adherent in the corneal scar.

4. In the third case a traumatic cataract was formed.

5. Young children should not be permitted to play with sharp instruments.

490 Post Street.

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# BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

## THE TREATMENT OF CASES APPARENTLY DEAD FROM ELECTRIC SHOCK

**Felix L. Pearl, San Francisco.**—Unconsciousness from electric shock may be due to either paralysis of the respiratory and vasomotor centers in the medulla, or ventricular fibrillation, or both.

Jellinek, from a vast experience in electric accidents, announced as early as 1912 that in many, if not a majority of such cases, the patient was not dead, but merely asphyxiated, due to the refractory state of the medullary centers. From the time of the passage of the current to the return of the eye reflexes the brain is insensitive to external stimuli and the usual tests of death do not obtain. The patient is cold and cyanotic, but the heart functions, as can be shown by palpation of the pulse and auscultation of the heart. By keeping the blood properly oxygenated until the centers again become sensitive, recovery is possible, some cases being revived after three and one-half hours, several after one and one-half hours.

On the other hand, Jeks-Blake, Borrutau, Levy, and others claim that the apparent death from electric shock is in the great majority of cases a real death from ventricular fibrillation. These patients are not cyanotic but livid, and there is no evidence of cardiac function.

It is possible that spontaneous recovery from ventricular fibrillation not uncommonly occurs in man (Gaby, Levy), but not after fibrillation has been established for more than two minutes. Nerve centers cannot be deprived of their circulation for more than ten minutes without becoming permanently damaged, and five minutes is the usual time allowed, although the life of a nerve cell under these circumstances is probably closer to two minutes.

Apart from spontaneous recovery, ventricular fibrillation occurring under the conditions of electrical shock appears to be hopeless. Artificial respiration is useless. In the cat direct cardiac massage nearly always restores normal rhythm to a ventricle in a state of experimental fibrillation, and it is possible that a similar result would follow in man; yet direct cardiac massage in a human subject, through an abdominal incision, is an operation which most medical men would hesitate to do. To be effective the heart must be massaged before the ten-minute period has elapsed.

Since the physician rarely sees a victim within the first few minutes after the shock, the responsibility for the most important part of the treatment falls upon those who are near the scene, usually coworkers or friends, who are unable to judge the nature of that particular case of electrical unconsciousness. For this reason the employees of large electric companies have been instructed to treat these victims as if each case were a case of respiratory paralysis, and to continue this treatment until a physician arrives. It is not to the credit of the profession that victims have been revived an hour and more after a physician has pronounced death. It indicates that further knowledge of the treatment of such cases can be disseminated with profit.

The victim is first freed of the electric current in the safest manner. If the charged victim must be touched, the foot should be used instead of the hand, remembering that currents from foot to foot are rarely fatal, whereas those passing through the chest frequently are. Jellinek has special kits with insulated instruments to break the current. Artificial respiration should then *immediately* commence.

The prone pressure method of Schäfer is without qualification the best method, and, properly performed, is superior to any mechanical device such as the pulmotor. Artificial respiration should be continued without interruption for four hours if necessary, until normal respiration is resumed, or death is certain. Despite his support of ventricular fibrillation as the cause of death in most cases, Jeks-Blake says, "Nothing less than cooling of the body or the onset of rigor mortis should be taken as evidence of death here."

The view is prevalent that if the victim is subjected to some physical countershock, his condition is benefited, and certain articles describe in detail the proper methods of inflicting this bodily chastisement. The experiments of Campbell and Hill on cats, however, fail to support this contention. Regarding the use of stimulating hypodermics, the opinion of those most familiar with this condition advises against their use, and some claim that they are even a drawback to a successful outcome.

During the resuscitation the patient should be kept warm. He should not be moved unless weather conditions make it imperative, and then only in the prone position, receiving artificial respiration all the while. Any local wound resulting



from the passage of the current or associated conditions may be dressed by an assistant worker. Open wounds are best treated with moist sterile dressings. It is well to splint injured extremities.

If normal respiration is restored the patient should be made to lie recumbent. The inhalation of  $O_2$  95 per cent, and  $CO_2$  5 per cent is now indicated until the patient is fully restored. The H. and H. inhalator is the apparatus of choice. Pure oxygen or air enriched with oxygen is not a respiratory stimulant, and may even be a depressant.

Between the onset of apparent and the moment of real death there is evidently a distinct interval of time which in some cases may be as much as fifteen minutes. If the physician pronounces the case one of ventricular fibrillation artificial respiration should be carried out for at least that period in the hope that spontaneous return of normal rhythm will occur.

The patient should then be moved to a hospital and kept in bed for at least two weeks. There is a tendency for such cases to have delayed cardiac dilatation which may result fatally. Other conditions overlooked during the initial excitement may appear during the convalescence.

Local electrical injuries heal remarkably well, but slowly. The final slough, however, may be several times the size of the original injury. Surgery is contraindicated until the final limits of the injury are determined, and should be approached with caution. Apparently normal areas are often the seat of widespread damage to vessels which may cause difficult postoperative complications.

\* \* \*

**Edmund Butler, San Francisco.**—All physicians must learn and instruct those who look to them for guidance that the pulmotor and the lungmotor are not essential equipment for resuscitation. The Bureau of Mines and the Commission on Resuscitation from Gas Asphyxiation do not advise their employment. Artificial respiration by the Schäfer method is the accepted procedure to oxygenate the blood until voluntary respiration has been established.

Persons suffering from electric shock are more frequently encountered at present than in the past. The common use of electric lights, electric cooking and laundry machinery, incineration and farm machinery, makes it necessary that the physician be prepared to give exact instruction over the phone, directing the resuscitation of a shocked person.

The shocked individual is not to be pronounced dead until at least two hours have been utilized in attempted resuscitation. Rigor mortis is the only positive evidence of death that is to decide that further resuscitation is futile.

The statement is sometimes made that physicians have interfered with the giving of artificial respiration by lay workers and pronounced the

individual dead, when in the opinion of the experts all chances of resuscitation had not passed.

The lesson to be learned is that the usual signs of death are not to be relied upon following electric shock.

In thickly populated centers industries under the guidance of competent physicians will instruct laymen in the proper methods of resuscitation, but in the sparsely settled districts where a great amount of electricity is used the local physician should form classes and give instruction.

Artificial respiration by the Schäfer prone pressure method, for the patient that is not breathing following electric shock is the treatment of choice. The use of the H. H. inhalator to deliver oxygen 95 per cent and carbon dioxide 5 per cent to the patient instead of air is helpful and the carbon dioxide stimulates respiration, but the inhalator is only an adjunct and is not necessary. The inhalator does not attempt to give artificial respiration as the pulmotor is supposed to do; it only delivers  $O_2$  and  $CO_2$  to the patient instead of air.

Not all patients who are shocked are resuscitated, but many who were apparently dead have been revived.

\* \* \*

**H. C. Stinchfield, Los Angeles.**—Unconsciousness in electrical shock is due either to ventricular fibrillation, paralysis of respiratory and vasomotor centers of the medulla or a combination of all three.

If more cases were observed by well-trained physicians in electrical injuries this question would be settled. Unfortunately this is not the case. Most physicians have had little or no training in care of electrically injured persons and are therefore ill at ease when called to see them; whereas electrical workers are constantly being trained in what and how to do in rescuing the victim, performing artificial respiration and caring for the cases after breathing and heart action have been restored.

As the use of electricity is universally increasing it is time that medical colleges throughout the land give their undergraduates a thorough training in the care of these cases. It is astonishing how many physicians are deficient in performing artificial respiration. They waste valuable time preparing hypodermics when artificial respiration is the needed assistance.

The prone pressure or Schäfer method is the method par excellence, though there are cases of many fractured ribs and extremely fat abdomens where the Sylvester method can be used to advantage.

Those rescuing the victim from contact must be thoroughly insulated themselves, either by standing on dry boards, thick wads of dry hay, thick quantities of dry clothing or insulated stools; this is imperative. If this is impossible, then free the victim with dry broom, long dry wooden sticks,

pulling switches, plugs or shorting lines with chains or wire—anything to “kill” the line.

Never touch a victim in contact with electricity until you have done some of the above things, else you may be the death victim while the original victim recovers. Begin artificial respiration immediately while others can loosen all constrictions around the body. Remove shoes and, if victim is a lineman, his tool belt and spurs. If necessary keep up respiration for three to four hours. Assistants can massage legs toward the body to help superficial venous circulation. Keep head on level with body, face on arm, out of dirt. Keep body warm with hot rocks, bricks, bottles, etc. Be sure they do not burn the devitalized skin while patient is unconscious. Waste no time dressing wounds or arranging fractured bones if help is scarce. Do this after patient is properly revived, then remove to hospital or home.

Do not cover the face with a lot of stuffy dressings. Use bland ointment of some kind. The patient will appreciate this. The burns elsewhere can be covered with noncarbolyzed vaselin or non-salted cooking compound in emergency. There is an ointment on the market now that is fairly cheap and is excellent for regular dressings.

Give patient plenty of water as soon as he can retain it to keep the kidneys well flushed. Do not force hot drinks until patient is conscious enough to swallow. Stimulants will be necessary after patient has recovered consciousness. Do little or no surgery at first; wait for line of demarcation to develop. Watch for sudden hemorrhages, and from deep wounds particularly. Always be guarded in prognosis. The most serious-looking and apparently hopeless cases will recover while cases that are seemingly little injured will die unexpectedly. Mechanical devices for artificial respiration in electrical shock are of little value.

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University of California Research Checks Vaccination Efficacy.—As a further check on the value of vaccination for smallpox protection, and as a further proof that the smallpox epidemics of 1919-20 in the Philippine Islands were not caused by failure of vaccination, two research workers at the University of California have just completed a survey of mortality records in the Islands from 1898 to 1923.

The university workers, Eschscholtzia L. Lucia and Laura S. Haymond, worked out the correlations between the number of deaths from various diseases each year and the administration in charge of public health measures during that period. They find that there was a general increase in mortality from a number of unrelated diseases during the period 1914-21, during which the public health service was under native control, and that the high positive correlation between the many cases of death indicates a demoralization of health administration, while the Filipinos were in charge.

In confirmation of this finding they quote from a letter from Major-General Leonard Wood to Dr. W. O. Stillman, president of the American Humane Society, written in 1922. “Your letter of March 22

quoting statement from a correspondent in Florida, which would seem to throw some doubt upon the efficacy of vaccination, has just been received. The real facts are diametrically opposite; instead of there being any doubt as to the value of vaccination against smallpox it has been doubly confirmed—when the records are analyzed they show that something like 90 per cent of the deaths occurred in children, most of whom were born since 1913. The records show that vaccination has been steadily continued since 1913, but on investigation it was found that, owing to inefficient inspection, vaccination consisted mostly in destroying the vaccine and submitting reports to the main office that it has been applied. In brief a huge unvaccinated population had accumulated in the Philippines; it only required a spark to set it into conflagration, and in a short time a smallpox epidemic began among these unvaccinated children which assumed huge proportions and eventually gained such virulence that it affected persons who under ordinary conditions would have been safe.”

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Forthcoming Report on the Saunders Awards.—The offer of two prizes of \$50,000 each by Mr. William Lawrence Saunders for an effective means of preventing and curing cancer expired on February 1, 1928. All of the applications, numbering 3529 up to May 1, have been placed before the Board of Reference consisting of a group of eminent medical men which the American Society for the Control of Cancer requested to act for it in an advisory capacity. At a recent meeting of this board held at Washington, D. C., the following report was made:

“1. None of the proposals submitted up to February 1, 1928, is worthy of an award either for the prevention or cure of cancer.

“2. While it is to be regretted that no effective preventive or curative agent has been discovered as a result of the offer of these awards, it is the opinion of the board that a great amount of the material submitted, if published, would be of great value to medical science.

“3. It is recommended, therefore, that a report be prepared by the American Society for the Control of Cancer upon the analysis of these applications in order that the information thus acquired may be placed permanently on record, together with such statement of the facts now established in regard to cancer as will serve to explain why the remedies advocated do not, and could not be expected to, serve as an effective preventive or curative agent.

“4. This report should be prepared for publication primarily for the medical profession, but the facts should also be made accessible to the general public.”

The foregoing report has been ratified by the executive committee of the society and steps are now being taken to prepare such a report as the Board of Reference has recommended. Mr. Saunders is warmly in favor of producing a volume which shall express in readily understandable language the essential facts and opinions as proposed by the board.—*American Society for the Control of Cancer.*

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Coronado Meeting Reservations.—Early reservation at Hotel del Coronado by northern members is urged by the Committee of Arrangements. The following are the rates which have been made for members at the Hotel del Coronado:

|                                            | Per Day |
|--------------------------------------------|---------|
| Rooms without bath, but near one.....      | \$ 9.00 |
| Rooms with bath.....                       | 10.00   |
| Three persons in room with bath.....(each) | 9.00    |
| Rates above quoted include meals.          |         |



California and Western Medicine

Owned and Published by the

CALIFORNIA MEDICAL ASSOCIATION

Official Organ of the California, Utah and Nevada Medical Associations

BALBOA BUILDING, 593 MARKET STREET, SAN FRANCISCO

Telephone Douglas 62

Editors

Associate Editor for Nevada

Associate Editor for Utah

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Subscription prices, \$5.00 (\$6.00 for foreign countries); single copies, 50 cents.

Volumes begin with the first of January and the first of July. Subscriptions may commence at any time.

Change of Address.—Request for change of address should give both the old and the new address. No change in any address on the mailing list will be made until such change is requested by county secretaries or by the member concerned.

Advertisements.—The journal is published on the seventh of the month. Advertising copy must be received not later than the 15th of the month preceding issue. Advertising rates will be sent on request.

Responsibility for Statements and Conclusions in Original Articles.—Authors are responsible for all statements, conclusions and methods of presenting their subjects. These may or may not be in harmony with the views of the editorial staff. It is aimed to permit authors to have as wide latitude as the general policy of the journal and the demands on its space may permit. The right to reduce or reject any article is always reserved.

Contributions—Exclusive Publication.—Articles are accepted for publication on condition that they are contributed solely to this journal. California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

EDITORIALS

A STATE MEDICAL LIBRARY AT SACRAMENTO

*The County Medical Library Plan.*—Last month, in this column, was discussed the possibility of instituting county medical libraries. A plan for maintenance support derived from public funds was suggested. The gratuitous services rendered by members of the attending staffs of the larger county hospitals of California were referred to as a means by which such funds could be secured. It was estimated that the yearly totals of such maintenance funds would run into sums of such size that several county medical libraries of broad scope could be instituted.

The plan was submitted in all earnestness and in full belief by the writer that details could be worked out, which would make the plans suggested quite practicable.

\* \* \*

*Plan for a State Medical Library.*—Today we wish to point out that efforts for public medical libraries need not be confined to counties. The benefits accruing from medical libraries make for increased health and prosperity of lay citizens, and on that account are worthy of state support, as much as is its general library devoted to literature, the arts, and to sciences in general. It is true that if the appropriations for the support of a state medical library could be derived only from the general funds which the state raises through taxation on the real and personal property of public utility corporations and so on, it would

hardly profit us much at this particular time to take up this project of a state medical library in too serious a fashion. For the demands on state funds which are raised by taxation are so many and so large, that it could be taken almost for granted that the legislature would refuse to make appropriations from such sources to support a state medical library, and even if so made, it would be a question whether the governor of the state might not veto the measure.

The question therefore arises here, as in the case of proposed county medical libraries, whether any state funds not raised by taxation or assessment are existent in California upon which the medical profession could make just claim for the founding and support of a state medical library.

\* \* \*

*Possible Source of Funds for a State Medical Library.*—To such a question the answer could be made that such a fund does exist, that it is fairly large in amount, and furthermore is made up almost exclusively from payments received from doctor citizens. This fund, coming almost entirely from the medical profession, might very justly be used in the interests of the medical profession, when such interests make for greater service and health protection to the citizens at large. Certainly such a fund should not be diverted, through legislative enactment, to become part of the general funds of the state upon which the state could make demands for its general administration and other work, such as the support of roads and miscellaneous institutions and activities.

Our thought was turned to this fund and its possible utilization as a nucleus for a state medical library, through mention of the amount now in this fund, which was made last month at a legislative conference with members of the state Board of Medical Examiners.

\* \* \*

*Reserve Funds of the Board of Medical Examiners.*—The financial report of the Board of Medical Examiners of the state of California on September 30, 1928, showed an approximate balance in its reserve fund of \$199,297.03. This large sum has been the gradual accumulation over a period of years, from sources such as application and reciprocity fees. For example, the fee in California to secure a license to practice through reciprocity is \$100.

The Board of Medical Examiners works under a budget recommended by the state Board of Control, the annual expenses of the board to the amount of its budget being paid from the above fund. As a matter of fact, except for one small appropriation of \$2500 in 1906 to restore San Francisco records destroyed in the fire, the Board of Medical Examiners has received no moneys from the general tax funds, its maintenance charges coming from the license fees, etc., the unused portion of which went into its reserve to grow until it now amounts to almost \$200,000.

If this fund continues to accumulate it may be taken for granted that it will not be long before



an effort will be made at some future session of the legislature to transfer the greater portion thereof into the general funds of the state, to be used on roads, prisons, and other activities. Perhaps such an attempt may be made when the legislature meets two months from now. Who knows? If so, such an effort should be vigorously opposed by the medical profession.

This money coming from physicians, and earned and saved by physician-examiners, should not be diverted from purposes that would upbuild the practice of medicine. It should be made to serve the people of the state by developing high and higher standards of healing art practice, as can be done in part, for instance, through the spread of knowledge by means of a state medical library.

\* \* \*

*The Present State Library at Sacramento.*—A few words about our present state library, founded in January 24, 1850, and which since this last summer is housed in the new capitol extension building at Ninth and Tenth, and M and N streets, opposite the state capitol grounds in Sacramento. This library has some 374,756 volumes. There are very few medical works on its shelves. The profession of law is better represented. Practically no medical books are being bought at this time for this library.

The state library loans to all libraries within the state, and sends books to citizens through county libraries, or where such do not exist, then direct to the citizens who apply.

In similar manner, a medical library unit of this state library would be in position to place the latest literature in the hands of physicians in any portion of the state, and could be made to be a real boon to members of the profession in both urban and rural districts.

\* \* \*

*Amount Necessary to Inaugurate a Medical Unit in the State Library.*—Why could not \$100,000 dollars of this medical board balance of practically \$200,000 be set aside by the legislature, which meets in January next, as a fund by means of which a state medical library could be brought into existence? Such a medical library as part of the state library would naturally come under the jurisdiction of the state librarian. To help the state librarian in the technical supervision concerning medical books, journals, and so on, it might be desirable to have an advisory board of five or seven, which might be authorized to aid in the development of such a medical unit. Such an advisory board could consist of the chairman of the Board of Medical Examiners, the deans of the Class A medical schools in California, and two or three nonex-officio physicians appointed by the Governor.

If later on special maintenance funds were necessary for the medical library unit, these could be raised by taxing all medical licentiates in California the sum of two or three dollars per year, in lieu of the present one dollar a year tax.

\* \* \*

*Prompt Action Necessary Since Legislature Meets in January.*—Our legislature meets in Jan-

uary next. Why could not the Board of Medical Examiners take the initiative in this matter and have a bill prepared which could be submitted in the first thirty days of the session? Why could not the Council of the California Medical Association authorize an investigation of the plan here proposed and consult with a committee from the Board of Medical Examiners? If the matter be not taken promptly in hand, it must wait until the subsequent session of the legislature, some two years distant. Why not get this whole project under way at once? What ends would be gained through waiting? The new state library building has ample space. All it needs, from the standpoint of a medical unit, are the medical books and journals. The money necessary to inaugurate the plan is at hand, in a medical fund derived from doctors, and which it proposed, through doctors, to spend to the advantage of citizens at large. A comparatively simple enabling act, with provisions for an advisory board and other safeguards is seemingly all that is necessary to inaugurate such a medical unit of our state library at Sacramento. Is the suggestion not worthy of very serious thought by the state administration, by the Board of Medical Examiners, and by the California Medical Association and its component county medical societies?

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#### PROPOSED AMENDMENTS TO THE STATE MEDICAL PRACTICE ACT

*A Recent Conference on the California Medical Practice Act.*—Members of the Board of Medical Examiners and representatives of the different medical schools of California at a recent conference in San Francisco considered a number of proposed changes to the Medical Practice Act. Since the next legislature will convene on January 2, it was thought best that needed modifications of the law might well be gone over before that time. It may be of interest to mention some of the items which were informally discussed.

\* \* \*

*More Latitude in Arranging a Medical School Curriculum.*—In the matter of having the state Medical Practice Act outline the exact number of hours for each subject in a medical school curriculum, it was thought that the defects of that method counterbalanced its presumable benefits. It was generally agreed that medical schools of Class A standard should be permitted to have more latitude as regards the exact number of hours to be devoted to each subject.

\* \* \*

*Requirement for a Fifth Year of Practical Work.*—The fifth year requirement was held to be a suitable standard for California. At the present time graduates of eastern colleges who have received their M. D. degrees at the end of their fourth year of professional training can come into California, secure their licenses and engage in practice almost one year before California graduates, since the latter, under the requirements of California medical schools are



required to take a fifth year of practical work before being eligible to receive their M. D. degrees.

It was also felt that the fifth year should be permitted to cover an internship, laboratory work in a Class A medical school, or public health work. Graduates during this fifth year would be under the supervision of their own medical schools, and such medical schools would be obliged to certify to the Board of Medical Examiners that this fifth year of medical work had been fully and satisfactorily completed.

\* \* \*

*National Board of Medical Examiners Certificate.*—Some thirty-nine states are now accepting the credentials or certificates of the national Board of Medical Examiners. It was agreed that California might likewise accept these credentials, safeguarding this acceptance in two ways. One, by making it optional with the California board as to whether or not the credentials should be accepted; and, two, by obligating the national board to give to the California board, copies of the questions and answers of applicants who wished to register in California on national board certificates.

The national board gives examinations at the end of the second and the fourth years of medical school work. This arrangement would thus permit students in medical schools in California to avail themselves of this convenience if they were so minded.

\* \* \*

*Basic Science Law.*—The desirability of having California adopt a basic science law of the general form which has been discussed in these columns in previous issues was considered. It was felt that owing to the fact that California had separate examining boards for different groups of practitioners of the healing art, and because one or two of these boards existed through initiative vote, that it might be desirable at this time to take no steps for the passage of a basic science act.

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*The New Occupational Standards Department.* The occupational standards department which it is proposed to bring into existence has been discussed in this column in previous issues. This occupational standards department is an administration measure and will probably come into existence through act of the next legislature. Inasmuch as the proposed act has as yet not been put into its final draft by the administration officers at Sacramento, it is not possible to know whether the director of this department is to be a layman, or how far the power of such a director would extend in supervising or controlling the actions of boards which will be taken over. The Board of Medical Examiners will be one of the score or so of boards which will be placed under the control of this new department, whose director will have a seat in the so-called Governor's cabinet.

It was felt that as regards violations of the Medical Practice Act, the real supervision of the investigation work of those who violated the state medical law should be under the direct control of men familiar with the details of medical practice. It was felt that a lay director, unfamiliar with

the workings and standards of the profession, might intentionally, or unintentionally, if he had full power over such investigations, nullify to considerable extent the protection of the public from incompetent practitioners.

\* \* \*

The representatives of the Board of Medical Examiners who were present were to report back to that board to learn whether the board as a whole would concur in the suggestions above outlined. In case the board did concur, it would assume the responsibility of putting the suggestions into form suitable for submission to the state legislature. Members of the profession who have other suggestions to offer should send them to the central office of the board, 623 State Building, San Francisco, sending a copy to the office of the California Medical Association.

### BETTER VACCINATIONS

The vitality of popular opposition to vaccination is a recurrent source of surprise to the medical profession. Certainly there is no known prophylactic against disease the value and almost invariable efficacy of which has been so repeatedly and conclusively proved as this, and yet, during periods of relative freedom from smallpox, antivaccination propaganda finds receptive ears again and again despite every disproof of its claims. The failure of the great majority of states and municipalities to enact or to enforce universal vaccination laws is plain enough evidence of the strength of the opposition. It clearly devolves upon the medical profession, if it wishes to make better headway against the opposition, to inquire just what is the basis of the opposition, whether it is simply the gullibility of a large—and presumably the less intelligent—section of the population (whose votes are quite as effective as those of the remainder, and more likely to be cast), or whether there is some more valid reason, which can be more easily countered than can irrational prejudice.

In our opinion the chief stumbling-block in the way of wider popular acceptance of vaccination is the fear of secondary infection and disfigurement. That the greater part of the public is well convinced of the real value of vaccination is clearly shown by the fact that during periods of epidemic smallpox comparatively few individuals refuse to be vaccinated. When the danger is less immediate it is necessary, as every physician knows, to argue at length with many people and particularly with parents before obtaining consent. The constantly recurring objections are offered that the patient has known of someone who nearly lost an arm or who had a running sore that lasted for months or who could not walk for weeks after vaccination. The patient himself may offer in evidence a large, ugly scar of a vaccination done many years before. Mothers are particularly anxious not to have the arms of their girl babies disfigured. It must be admitted that, to an impartial lay judge, the objections have considerable weight and cannot be dismissed without due consideration. They



differ from the stock arguments of the antivaccinationists, most of which are not even mentioned by patients.

\* \* \*

That commercial vaccine has greatly improved in purity and strength during recent years cannot be questioned, nor that the methods of applying it in general use are better than they were forty years ago. Yet failure to adopt a uniform procedure mitigates against invariable success.

The most important of the technical errors are, improper scarification, and inadequate after-care. There is difference of opinion as to the area of scarification necessary to a take. The former belief that the larger the scarified area the better the chances of success is quite erroneous. It is much more probable that the larger the scarified area the better are the chances for secondary infection and certainly for a slowly healing and unduly large scar, while the chances of successful vaccination "takes" are in proportion only to the activity of the vaccine. In large initial scarifications a vaccinal take, or rather a series of takes, an inch or more in length may be produced. If multiple inoculation is used, and two or three of the inoculated areas take, they will spread toward each other, fuse and produce a single elliptical or circular lesion which may be an inch or more in diameter. Not only is such a lesion certain to leave a large scar, but it is not improbable that it may become secondarily infected because of the ease with which so large a vesicle and the resultant scab is traumatized. If this occurs a large ulcer is formed which later fills in with granulations and prevents, for a long time, the formation of a healthy epidermal covering.

The variety of scarification implements is rather wide. Scalpels, drills, needles and glass points are in commonest use. Scarification is done by scratching, incision, abrasion and by pressure. Deep scarification with the drawing of blood is an error of technique that is almost unavoidable except with the pressure method, and which is, next to the use of weak or impotent vaccine, the commonest cause of failure to take.

As regards after-care, the use of the shield, while less common than some years ago, has not yet been wholly abandoned. They can be bought at most drug stores and are often put on by uninstructed patients. As a rule, however, no dressing at all is applied. In the case of infants and small children a dressing after vaccination is advisable to prevent touching and spreading live vaccine to other parts of the body, such as the face. Too frequently no after-care at all is given and no instructions. The patient is seen once to determine the success of the vaccination. It is only by scrupulous cleanliness and attention to early evidences of infection that unfavorable results can be minimized.

\* \* \*

A recent publication of Dr. J. P. Leake\* of the U. S. Public Health Service describes an admirable technique of vaccination, which has so

many merits that it deserves universal adoption. It has the following advantages, among others: a rapid and practically painless and non-traumatizing scarification without hemorrhage; a single minute scarification area; a high percentage of takes; no introduction of virus and secondary invaders into the subcuticular level; a possibly higher percentage of takes in previously vaccinated persons. With minor modifications the method of Leake is as follows: The skin is gently cleansed with acetone or ether, and allowed time to dry. The drop of virus is placed on the skin and, the needle, held *parallel* to the surface, is rapidly pressed against the skin thirty to forty times over an area not greater than one-eighth inch in diameter. The side of the point is thus forced into the skin to a slight depth, introducing the virus into the lower layers of the epidermis (where only it grows) but not reaching the corium. The virus remaining on the surface is blotted with gauze. No dressing is necessary for older individuals, but for infants or young children who might touch or rub the area, a light gauze dressing is applied which is to be removed the next morning. Those who have not been previously vaccinated are required to return at the end of one week. If the vaccination is taking at that time, the site may be touched with alcohol or painted with one per cent gentian violet solution. A thin gauze dressing is applied very loosely, which the mother or patient is instructed to change every other day until a firm dark crust has formed. Special instruction is given that if the dressing adheres it is to be soaked off carefully with equal parts of alcohol and boiled water. Scratching or rubbing must be avoided. If there is an unusual amount of swelling or hyperemia a wet dressing of magnesium sulphate (25 per cent solution) or of equal parts of alcohol and glycerin is applied for twenty-four hours, but this is rarely necessary. Scrupulous cleanliness in handling the lesion is of the utmost importance up to the time the scab drops off.

As Leake points out, it is highly important that virus be properly stored. It loses its activity rapidly when it is raised much above the freezing point. Most druggists, obtaining vaccine from the producer or wholesaler, keep it in the refrigerator but not directly in or on ice, and it loses its potency rapidly under such conditions. The physician should bring to the attention of the druggist from whom he obtains his vaccine, the importance of proper refrigeration. It is wise to insist that the pharmacist shall not dispense vaccine more than two weeks old and that it be kept directly on ice.

Using the method described, a single, typical scar results which is not disfiguring. With the assurance of such a result little difficulty will be met in persuading mothers to have their girl babies vaccinated on the arm, and the fear of vaccination will be much less than in the past. Secondary infections are extraordinarily few. The Leake method supplies excellent ammunition against the antivaccinationist.

\* Leake, J. P.: Questions and Answers on Smallpox and Vaccination. Pub. Health Rep., January 28, 1927, No. 4, Vol. 42, p. 221.



# MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

## Urology

### Treatment of Carcinoma of the Prostate.—

During the past twenty years much work has been done, and a great amount of literature has accumulated on the treatment of carcinoma of the prostate. Nevertheless no satisfactory radical treatment has yet been devised. Various methods are recommended by different authors, varying from the ultraconservative, who believes that any treatment is the wrong treatment, to the one who advises the combined use of surgery, radium, x-ray, and electric coagulation. Regardless of the treatment, the results are far from satisfactory, no one claiming more than 4 or 5 per cent of cures. This discouraging state of affairs is attributable to the insidiousness of prostatic carcinoma. When the physician first sees the case the disease has usually progressed so far that it is incurable. For this reason routine rectal palpation of the prostate should be a part of every physical examination of men of fifty or over.<sup>1</sup> Inasmuch as the carcinoma nearly always begins in the posterior lobe, which is in contact with the rectal wall, such a routine examination will reveal the stony hardness and nodules of a beginning malignancy, and will lead to an early diagnosis in a larger number of cases.<sup>2</sup> The fact that most prostatic carcinomata are slow growing and metastasize late,<sup>3</sup> makes us optimistic regarding the future results of its treatment when earlier recognition will have brought more cases under earlier treatment.

For many years Young advocated a radical perineal operation for carcinoma of the prostate, in which he removes the seminal vesicles, bladder neck, and most of the trigone, with the prostate. He has done this on cases in which the involvement was not extensive, and reports that 62 per cent lived five years or more.<sup>4</sup> Morson of London advocates a similar radical removal by way of the suprapubic approach rather than through the perineum, and reports good results, although no statistics are given.<sup>5</sup> Radium is generally used in more advanced cases which are inoperable, and is applied either by means of needles through the perineum or rectum, with the cystoscope or through a suprapubic opening directly into the gland; or by inserting the radium in the urethra or rectum. Barringer reports that 15 per cent of cases treated by radium lived more than three years,<sup>6</sup> and states that it is frequently necessary to do either a Punch operation or a cystostomy for relief of obstructive symptoms in cases treated in this way.<sup>7</sup> Deep x-ray therapy is a more recent addition to the armamentarium for treating prostatic carcinoma, but as yet has not proved to be exceptionally valuable.<sup>8</sup> Bumpus has reviewed

one thousand cases of carcinoma of the prostate treated at the Mayo Clinic and found that the longest duration of life after instituting treatment was in cases upon which a simple cystostomy for palliative treatment was done. Prostatectomy, partial or complete, gave a longer duration of life than radium, and radium in turn a longer duration than those cases which were not treated.<sup>9</sup>

A résumé of the poor results obtained by any method of treating prostatic carcinoma only serves to emphasize more emphatically the great importance of the early diagnosis of this condition.

ROGER W. BARNES, Los Angeles.

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## Bacteriology

**Postscarlatinal Nephritis.**—In many cases after apparent recovery from scarlet fever, acute afebrile glomerular nephritis develops about the third week. Longcope<sup>1</sup> could obtain no cultural evidence that this nephritis is due to an actual invasion of the kidney with viable streptococci, and suggests that the nephritis is probably caused by the absorption of toxic products from residual foci of infection in the upper respiratory tract. Duval<sup>2</sup> of the department of pathology of Tulane University, New Orleans, has recently obtained experimental evidence in support of this view.

Duval found that dogs, recovered from experimental inoculation with scarlatinal streptococci, have a distinct immunity to reinfection with the

living streptococci. These dogs, however, develop a severe and often fatal acute glomerulonephritis that is histologically identical with the afebrile postscarlatinal nephritis in man on subsequent injections with lytic products from streptococci. He believes that scarlatinal infection establishes a bactericidal or bacteriolytic immunity and that this increased bacteriolytic power acting on residual foci in the upper respiratory tract is the immediate cause of the kidney lesion.

W. H. MANWARING, Stanford University.

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2. Duval, C. W.: *Proc. Soc. Exper. Biol. and Med.*, 1928, 25, 529.

### Surgical Diathermy

**Surgical Diathermy in Treatment of Cancer.** Surgical diathermy in the treatment of malignancies has at the present time received but slight recognition from members of the profession. It is my purpose to emphasize the many advantages over other treatments secured by its use. The diathermy knife, which is a modified Bard-Parker handle carrying blades Nos. 10, 11, and 15, is connected with a good diathermy machine. This knife cuts as readily as the radio knife or cutting currents, and the skin flaps heal by first intention. With this electrode, the malignant growth can easily be dissected out bloodlessly, into healthy tissue. The regional lymphatics can also be removed from the neck or the axilla.

The control and technique is easier than with the cautery or radio knife, as this electrode works on the electrical principle, that "The current density varies in proportion to the square of the surface applied." A very small fraction of the current previously used is therefore required. Cutting down the volume of the current gives an easier control and a thinner coagulation along the severed edges. It is not necessary to use separate techniques for cutting and for coagulation as suggested in the use of the cutting currents, and a smaller fraction of the current is needed. A diathermy machine only is necessary for the operation.

Some of the advantages secured by the diathermy knife beside the simple and standardized technique, are: (1) steady regular heat; (2) in work near bone the periosteum need not be destroyed and the wound will heal much quicker; (3) dissection much closer to the malignancy will give less scarring; (4) because of the characteristic soft scar and saving of tissue, it is seldom necessary to do plastic work later; (5) regular surgical procedures can be carried out, as resection of rectum or a radical breast amputation, etc.; (6) no contamination of wound by forceps

or sutures, causing a reinfection; (7) no post-operative shock; (8) no loss of blood; (9) no after-pain, as cut ends of severed nerves are seared over.

SUTTEN H. GROFF, Long Beach.

### Industrial Medicine

**The Prophylaxis of Common Colds**—The common cold has often been termed the "opprobrium" of the medical profession, and perhaps it has merited this unfavorable comment. Certainly no other malady in the experience of large industrial and mercantile groups is responsible for so much inefficiency, sickness, absenteeism, and loss of time and money. For example, during the years 1918 to 1922 inclusive, there were 15,502 cases of absenteeism in the Edison Electric Illuminating Company of Boston (2200 employees), of which, 5328, or 34 per cent, were cases of common colds. The aggregate loss of time occasioned by this minor type of disability was 16,983 working days or the equivalent of fifty-six years! In a large mercantile group situated in central California 30 per cent of the dispensary calls during 1926 were due to colds. Numerous similar experiences might be cited.

Many admirable research studies have been made on the subject of etiology of common colds, with the consideration of such factors as ventilation, humidity, exercise, clothing, climate, breathing habits, individual susceptibility, nose and throat pathology, diet, bacteriology and the like. The results have well been summed up in the following statement: there is no known specific cause, treatment or very efficient preventive for colds.

There has been within recent years, however, an attempt to secure some reliable data concerning the effects of vaccines as a prophylactic measure. A great deal of valuable work has been done in different countries by such men as Böttner, Gähwyler, Jordan, Palmer, Simey, Cecil, Von Sholly, and Park. The outcome of most such inquiries was the establishment of the fact that even when stock vaccines have been used, from 30 to 50 per cent of those receiving inoculations have been definitely improved.

Dochez recently made the following statement: "Prophylaxis remains the best method of control." The argument has been used that because we do not know the specific cause of the cold, we can have no specific prophylaxis and should therefore not employ empirical formulae. If we can secure from 30 to 50 per cent improvement, it would seem worth while, even admitting the non-specificity.

Repplier and Leaman<sup>1</sup> worked with 125 employees of the Curtis Publishing Company of Philadelphia, finding that 30 per cent were immune from colds the following year after the completion of the prophylaxis, while 53 per cent were markedly improved. This left 17 per cent who



showed no favorable reaction. These investigators consider their results sufficiently satisfactory to warrant a continuation of their former prophylactic procedures.

Rush<sup>2</sup> of the Department of Public Health and Hygiene of the University of Kentucky worked with a small group of fifty-six persons, practically all of whom showed definite pathology of the nose, and about half of whom had demonstrable trouble in the throat. In spite of these apparent handicaps, almost half of the group showed beneficial results from the inoculation; about one-third showed a doubtful report, and about one-fifth a negative reaction.

No brief is held for or against non-specific prophylaxis. Colds are a problem of sufficient moment. Any reasonable procedure which gives hope of prevention or mitigation should receive serious consideration. It is of interest that a large mercantile group in central California is expecting to use a vaccine as a preventive measure during the present autumn.

C. O. SAPPINGTON, Oakland.

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#### Surgery

**The Treatment of Head Injuries.**—With the advent of the automobile and the progressing complexity of modern industry, there is a corresponding increase in the number of accidents, often resulting in more or less serious injury to the head. Perhaps in no other type of case is the wise and energetic action on the part of the physician so important for the ultimate good of the patient. It is the object of this contribution to review the essential points in the treatment of traumatism of the head.

When shock is present, treatment favoring the proper reaction of the patient is first demanded. Such common measures as a hot blanket, judicious use of hot-water bottles, and elevation of the foot of the bed, together with the use of stimulants, are indicated. Hot coffee by rectum is of great value if caffeine, adrenalin, or pituitrin are not at hand for hypodermic administration.

Treatment of any wound of the superficial tissues of the head should follow. The simple abrasion or "brush burn" of the skin may be cared for by the application of a suitable antiseptic after cleansing of the area with soap and water. Areas surrounding cuts in the scalp should be shaved, the wound cleansed, antiseptized, and closed with interrupted sutures, drains being used if the subaponeurotic space has been invaded. Wounds of the head should be dressed daily, so that any sign of infection can be detected. In all cases with open wounds the use of tetanus antitoxin is advised.

Unconsciousness of short duration is significant of a temporary derangement of the functions of

the brain (concussion) and no special treatment is necessary. Prolonged unconsciousness is suggestive of contusion, compression, or laceration of the brain with an attendant edema of its substance.

Dehydration of the brain may be accomplished by the use of hypertonic solutions by vein or by rectum. Glucose solution (50 per cent) intravenously in 15 to 30 cc. doses, or the administration of 50 per cent solution of magnesium sulphate in doses of 2 to 6 ounces by rectum (as a retention enema) are probably the most accessible in emergency. These procedures should be repeated at intervals of four to six hours until consciousness is regained. If the period of coma is prolonged over twenty-four hours, acidosis should be combated by the use of a rectal drip of 2 per cent soda and 5 per cent glucose solution. Routine testing for acetone in the urine will assist in preventing this condition.

Spinal puncture is of a diagnostic and therapeutic value. It indicates the rise of intracranial pressure and the extent of vascular damage. Therapeutically the removal of the fluid temporarily reduces pressure and relieves the cortex of the irritation of free blood.

Infection of the intracranial tissues originates in implanted contaminated material or through a traumatic opening or diploic vein. Where there is danger of infection follow the suggestion of Crowe to administer 15 grams of hexamethylin tetramin (urotropin) four times a day. This renders the cerebrospinal fluid slightly antiseptic and may help prevent intracranial suppuration.

Experience has shown that the conservative method in fractures of the skull is of greater value in lowering the mortality than early recourse to surgery. Decompression should be limited to those cases which show hemiparesis with spasticity immediately or which develop hemiparesis and unconsciousness after a lucid interval. A subtemporal craniotomy and opening of the dura should be done on the contralateral side to evacuate the blood-clot and to secure the bleeding point. Depressed fractures, especially in adults, call for operative interference with elevation of the fragments. It is unnecessary to add that any surgical measures will be most successful in the hands of the neurosurgeon.

Prolonged rest is of great importance in the after-care of head injury cases. If faithfully carried out, it will do much to avoid the unpleasant sequelae of headaches, vertigo, tinnitus, and symptoms of nervous imbalance. The patient cannot always be convinced of its value, but the physician has not discharged his duty until he has emphasized the importance of such a program.

CYRIL B. COURVILLE, Loma Linda.

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**Coronado Meeting Reservations.**—The tented city adjacent to Hotel del Coronado in the south, and facing the ocean boulevard will also be opened for the annual meeting. Cottages similar to those at Yosemite Lodge may be secured. Many members doubtless will prefer the seclusion and quiet of these detached cottages to rooms in the main hotel. Each cottage has automobile parking space, and porch space.

# STATE MEDICAL ASSOCIATIONS

## CALIFORNIA MEDICAL ASSOCIATION

WILLIAM H. KIGER.....President  
MORTON R. GIBBONS.....President-Elect  
EDWARD M. PALLETTE.....Vice-President  
EMMA W. POPE.....Secretary

### OFFICIAL NOTICES

**Clinical and Research Prize.**—From the report of Dr. George Dock, chairman of the Committee on Clinical and Research Prize, the following is excerpted: "The prizes offered for research by the California Medical Association have obviously stimulated productive work. Competitors can be assured that by following the general rules governing papers their manuscripts will receive careful and impartial consideration. Successful essays will secure places on the program for the state meeting, and their papers will be published in the journal of the state association. If on highly technical topics papers may be published in special journals.

It might be well to state that intending competitors should not write for further details to members of the committee, but should apply to the secretary of the Association."

Doctor Dock calls the attention of those interested to an official notice, page 201 of the September issue for more detailed information.

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**Annual Directory.**—The erection of medical office buildings in the various cities and towns and the consequent changes in office location necessitate numerous changes of address in the California Medical Association Directory yearly.

Methodical members notify the office. Some changes are discovered through returned copies of the journal and postal notification. Managers of office buildings furnish room numbers of their occupants on request. County secretaries coöperate in locating flitted members. Through one channel or another information is secured, but the most satisfactory and most accurate is the written personal notification. Before December 15—the date that the 1929 directory goes to press—will all members who have made a change of address aid in the accuracy of the next issue by sending in changes of addresses?

In the larger office buildings it is necessitated by postal law that the correct room number be given and in a few of the larger cities mail lacking this information is returned. Give, therefore, the name of the occupied building, the street, and the room and street numbers.

Names of members in good standing in 1928 only are included. Those names of new members who join the California Medical Association in 1929 will appear in the next annual issue.

While every effort is made to eliminate possible error, we have yet to publish the perfect edition. We ask that each member proofread his own notice and on the inserted slip that is enclosed in each copy of the directory, send corrections of statement or spelling, thereby lessening repetition of errors in succeeding issues.

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**Coronado Meeting Reservations.**—Early reservation at Hotel del Coronado by northern members is urged by the Committee of Arrangements. Reservations by

southern members have already been so numerous the Committee of Arrangements have asked that the journal notify northern members of this situation and ask that they make their reservations immediately.

The following are the rates which have been made for members at the Hotel del Coronado:

|                                            | Per Day |
|--------------------------------------------|---------|
| Rooms without bath, but near one.....      | \$ 9.00 |
| Rooms with bath.....                       | 10.00   |
| Three persons in room with bath.....(each) | 9.00    |
| Rates above quoted include meals.          |         |

The tented city adjacent to Hotel del Coronado in the south, and facing the ocean boulevard will also be opened for the annual meeting. Cottages similar to those at Yosemite Lodge may be secured. Many members doubtless will prefer the seclusion and quiet of these detached cottages to rooms in the main hotel. Each cottage has automobile parking space, and porch space.

Rates per room are quoted at \$7.00 and \$7.50 per day, American plan, with meals at Hotel del Coronado. The \$7.50 rooms are equipped with complete bath or private toilets; the \$7.00 rooms with running water only.

### COUNCIL MINUTES

#### Minutes of the One Hundred and Seventy-Fourth Meeting of the Council of the California Medical Association

*Approved at the One Hundred and Seventy-Eighth Meeting of the Council*

Held in Room 242 of the Senator Hotel, Sacramento, California, Sunday, April 29, 1928, at 8 p. m.

**Present.**—Doctors Phillips, Gibbons, Kiger, Kelly, Hamlin, Kinney, Duffield, Bingham, DeLappe, Shephard, Harris, Rogers, Peers, Catton, Kress, Shoemaker, Curtiss, Pope, and Charles V. Barfield, attorney.

**Absent.**—Doctor Coffey.

1. **Call to Order.**—The meeting was called to order by the chairman, Morton R. Gibbons.

2. **Woman's Auxiliary.**—Doctor Gibbons informed the Council that Mrs. John O. McReynolds, president of the Woman's Auxiliary, was present at the meeting and wished to address the Council regarding the formation of an auxiliary in California.

Mrs. McReynolds then addressed the Council, outlining the plan of the auxiliary as an avenue for conveying health messages as outlined by organized medicine.

3. **Illness of the General Counsel.**—The chairman advised that Hartley F. Peart, general counsel of the Association would be unable to be present at the annual session on account of illness and that Mr. Charles V. Barfield, Mr. Peart's associate, would advise the Association on any matters requiring legal opinion.

Action by the Council.—On motion of Catton, seconded by Hamlin, it was

Resolved, That the chairman and the secretary prepare a telegram to be sent to Mr. Peart, expressing deep regret at his inability to be with us, and sincere wishes for his early recovery.

4. **Report of the Council.**—Morton R. Gibbons, chairman of the Council, presented the annual report of the Council for discussion. It was decided that the



matter of increase of membership should be brought to the attention of the House of Delegates.

In the matter of Constitution and By-Laws, it was felt that since the House of Delegates would render final decision on the question, the report of the Council should include only the resolution of the House which was passed in 1927 providing for the revision and should make no recommendations thereon.

Harlan Shoemaker expressed the desire that in considering the Constitution and By-Laws, the matter of incorporation and referendum be placed before the House of Delegates in a separate item from the Constitution, and consideration thereof be had before discussion of the Constitution and By-Laws.

Action by the Council.—On motion of Phillips, seconded by Duffield, it was

Resolved, That the Committee on Revision of the Constitution and By-Laws submit a report to the House of Delegates.

**5. Committee on Handling the Insane.**—Joseph Catton read the report of the Committee on Handling the Insane and suggested that some mention of this problem be made in the report of the Council since the question had caused considerable discussion throughout the state.

The committee's report recommended that the committee be continued; that it be enlarged and of the following make-up: two members and the counsel for the state association and two members to be appointed by the Section of Neuropsychiatry of the California Medical Association.

Action by the Council.—On motion of Duffield, seconded by DeLappe, it was

Resolved, That the report of the Committee on Handling the Insane be adopted and the committee continued.

**6. Committee on Revision of the Constitution and By-Laws.**—Dr. George H. Kress, chairman of the Committee on Revision of the Constitution and By-Laws read the report of his committee. Doctor Phillips stated that, in view of the fact that the special committee had the final draft ready for printing and that Doctor Kress stated that the printing could be completed in time for presentation at the first meeting of the House of Delegates, he believed it might be advisable to have the printing done so that the delegates could have the draft before them.

Action by the Council.—On motion of Kelly, seconded by Hamlin, it was

Resolved, That the report of the Committee on Revision of the Constitution and By-Laws be received and placed on file.

Action by the Council.—On motion of Phillips, seconded by Hamlin, it was

Resolved, That the Council authorize the expenditure of sufficient funds to have the draft of the committee printed so that it can be presented at the first meeting of the House of Delegates.

A vote was then taken on the question of the authorization of funds for the printing of the draft of the special committee. Motion carried. Doctors Catton, Kelly, and Peers voted No.

**7. Incorporation and Enabling Act.**—The question of presenting the Article of Incorporation and the Enabling Act before consideration of the question of Constitution and By-Laws, was discussed.

Action by the Council.—On motion of Shoemaker, seconded by Catton, it was

Resolved, That consideration of the Enabling Act and the Article of Incorporation be had prior to consideration of the Constitution and By-Laws.

Action by the Council.—On motion of Kress, seconded by Duffield, it was

Resolved, That a committee of three consisting of Doctors Shoemaker and Kelly and Mr. Barfield be

appointed to present the matter of Incorporation and the Enabling Act.

**8. Herzstein Bequest.**—It was stated that a resolution of appreciation of the bequest of Morris Herzstein should be formulated for presentation to the House of Delegates.

It was the sense of the Council that this should be done. The chairman appointed Doctors Hamlin and Pope to prepare such a resolution.

**9. Report of the Secretary.**—Emma W. Pope read the report of the secretary which outlined the activities of the office of the Association.

Action by the Council.—On motion of Catton, seconded by Phillips, it was

Resolved, That the report of the secretary be adopted as read.

**10. Report of the Editors.**—George H. Kress read the report of the editors outlining the policies and make-up of the journal for the past year, and giving a brief report on the disposition of material received for publication.

Action by the Council.—On motion of Phillips, seconded by Duffield, it was

Resolved, That the report of the editors be adopted.

Doctor Phillips stated that an Advisory Committee had been appointed at the time the new editors had taken over the publication of the journal, but that the work of the editors had been carried on so satisfactorily that there was no report other than the suggestion that the committee be continued.

Action by the Council.—On motion of Hamlin, seconded by Duffield, it was

Resolved, That the committee be continued.

**11. Report of the Auditing Committee.**—At the request of Oliver D. Hamlin, chairman of the Auditing Committee, the secretary presented figures excerpted from the audit of the books of the Association as prepared by Hugh Ross, public accountant, giving the status of the funds.

It was the sense of the Council that the report showed a satisfactory financial condition.

**12. Report of the Committee on Scientific Program.** As chairman of the Committee on Scientific Program, the secretary presented the report of the committee, which was adopted as read.

**13. Report of the Legal Department.**—In the absence of the general counsel, the annual report of the legal department was presented by Mr. Charles Barfield, Mr. Peart's associate.

Action by the Council.—On motion of Catton, seconded by Hamlin, it was

Resolved, That the annual report of the legal department be adopted.

**14. Permanent Convention Headquarters.**—Harlan Shoemaker, chairman of the Committee on Permanent Convention Headquarters, stated that his committee had no report to submit. It was the sense of the Council that the interest on the funds carried by the Association in "A Permanent Quarters Fund" should continue to be added to the principal of the fund.

**15. Technical Specialties.**—The report of the Technical Specialties Committee as presented at the one hundred and seventy-third meeting of the Council was discussed and it was decided that Dr. William Bowman should be asked to present the matter to the House of Delegates.

**16. Medical Practice Act Committee.**—George H. Kress, chairman of the Committee on the Medical Practice Act presented the report of his committee.

Doctor Phillips stated that Mr. Alexander R. Heron, Director of Finance, State of California, had been invited to address the Council, and suggested that action



on the report of the Committee on the Medical Practice Act be deferred until that time.

**17. Date of Annual Meeting.**—The secretary advised that various members of the Association had stated that the date of the annual meeting of the California Medical Association and the dates of meetings of some of the larger special societies conflicted, which prevented their attendance at one or the other meetings. Discussion was then had as to the possibilities of changing the date of the annual meetings to October.

Action by the Council.—On motion of Kelly, seconded by Hamlin, it was

Resolved, That a committee be appointed of which Doctor Catton would be chairman to canvass the various section meetings and ascertain the attitude toward a change in the date of the annual meeting from the spring to the fall.

The chairman appointed as members of the committee, Joseph Catton, chairman; Lyell C. Kinney and Fred R. De Lappe.

**18. Woman's Auxiliary.**—On motion of Duffield, seconded by Kelly, it was

Resolved, That a vote of thanks be given Mrs. McReynolds for presenting the matter of the Women's Auxiliary to the Council of the California Medical Association.

**19. Adjournment.**—There being no further business the meeting adjourned to meet in the same place at 2:30 p. m. Monday, April 30, 1928.

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#### Minutes of the One Hundred and Seventy-Fifth Meeting of the Council of the California Medical Association

*Approved at the One Hundred and Seventy-Eighth Meeting of the Council*

Held in Room 242 of the Senator Hotel, Sacramento, California, Monday, April 30, 1928, at 2:30 p. m.

**Present.**—Doctors Phillips, Kiger, Gibbons, Kelly, Hamlin, Kinney, Duffield, Bingaman, DeLappe, Shephard, Coffey, Harris, Rogers, Peers, Catton, Kress, Shoemaker, Curtiss, Pope, and Charles Barfield, attorney.

**Absent.**—None.

**1. Call to Order.**—The meeting was called to order by the chairman, Morton R. Gibbons.

**2. Mr. A. R. Heron, Bureau of Finance.**—The chairman of the Council introduced Mr. A. R. Heron of the Bureau of Finance to the Council. Mr. Heron then explained the proposed plans for carrying out the work of the Bureau of Professional Standards, stating that it would be the duty of the bureau to set the standards for the practice of the profession; determine who is qualified to practice the profession; and determine the guilt of violators. Mr. Heron then invited questions from various members of the Council.

**3. Committee on Clinical and Research Prizes.**—

George Dock, chairman of the Committee on Clinical and Research Prizes, read the following report of the committee:

"Six papers were received. The committee is very much pleased by the increased interest in the prize competition, due to publicity given by the journal.

"The contribution most distinctly filling the requirements for research is one with the nom de plume 'B and L,' entitled 'An Electrocardiographic Study of the Effect of Emetin on the Rabbit's Heart.' This deals with an important problem and the research is very well carried out, and admirably presented. The article is worthy of publication in a technical periodical. The committee recommends that the research prize be awarded to the author of this paper.

"A paper with a nom de plume 'Cosrel' on the subject of 'Human Sexual Sterilization,' may also be con-

sidered as a research subject. The paper deserves commendation.

"Four papers are distinctly clinical. One with the nom de plume 'Calvarius' is entitled 'A Study in the Pathological Physiology of Intracranial Neoplasms—The Principle of Transmitted Pressure in the Production of Symptoms.' The committee recommends that this be given first prize for clinical research.

"A paper under the nom de plume 'Electric' entitled 'Electric Shock with the Report of an Unusual Case,' deals with a case of unusual interest and is well presented and should be published.

"A paper under the nom de plume 'Cocohebl' on 'Compensated Complete Heart Block' is a very good clinical study, well illustrated.

"The remaining paper under the nom de plume 'Medicus' on 'Vascular Occlusion in Diphtheria with Report of a Case' is an interesting one with a summary of the literature.

"It is probably not necessary to say that in recommending papers for publication, neither the committee nor the Association endorse the conclusions drawn."

Action by the Council.—On motion of Catton, seconded by Rogers, it was

Resolved, That the report of the Committee on Clinical and Research Prizes be adopted and the thanks of the Association be presented Doctor Dock and the members of his committee.

The secretary informed the Council that the paper "B and L" was presented by W. H. Leake and Phoebus Berman; and the paper "Calvarius" was submitted by Cyril B. Courville.

The Council was advised that the term of Eugene Kilgore, member of the Clinical and Research Prize Committee, had expired.

Action by the Council.—On motion of Kelly, seconded by Peers, it was

Resolved, That Eugene Kilgore be appointed a member of the Clinical Prize Committee to succeed himself, for a period of three years.

**4. Industrial Medical Survey Committee.**—Gayle G. Moseley, chairman of the Industrial Medical Survey Committee, presented a report on the survey made by his committee throughout the state, outlining the amount of medical service being rendered under the Workmen's Compensation Act and various forms of contract practice.

Action by the Council.—On motion of Kelly, seconded by Shephard, it was

Resolved, That the report of the committee on Industrial Medical Survey be adopted; that the thanks of the Association be extended to Doctor Moseley and his committee, and the committee be continued.

Various members of the Council commended Doctor Moseley on the excellence of the report as submitted and expressed the belief that the report should be presented to the Association as a whole. Discussion was then had as to the manner of presentation.

Action by the Council.—On motion of Kelly, duly seconded, it was

Resolved, That the editors be instructed to publish the report of the Industrial Medical Survey Committee in CALIFORNIA AND WESTERN MEDICINE.

**5. Committee on the Medical Practice Act.**—George H. Kress, chairman of the Committee on the Medical Practice Act, was called upon to state whether, after hearing the remarks of Mr. Heron, there was any further recommendation from his committee. Doctor Kress stated that the viewpoint as expressed by Mr. Heron was acceptable and he had no further report at this time.

Action by the Council.—On motion of Kelly, seconded by Duffield, it was

Resolved, That the chairman of the Council appoint a committee of three members of the California Medical Association who will make it their business to maintain contact with the government offices through-



out the period of formation of this bill in order that the attitude of the organized medical profession of the state of California may be conveyed to the legislature and that committee shall report at intervals to the Council.

**6. Woman's Auxiliary.**—The question of the formation of a Woman's Auxiliary was again brought up and discussed.

Action by the Council.—On motion of Kress, seconded by Kelly, it was

Resolved, That a committee of three, of which William Duffield shall be chairman, be appointed to make a study of the matter and report to the Council prior to Wednesday evening so the Council may be able to determine whether or not to recommend the formation of such an auxiliary in California to the House of Delegates.

**7. Incorporation.**—T. Henshaw Kelly explained the procedure necessary for the presentation of the Enabling Act, Referendum and Incorporation to the House of Delegates.

Action by the Council.—On motion of Phillips, duly seconded, it was

Resolved, That the report be adopted and the committee proceed with the presentation of the Enabling Act, Referendum and Article of Incorporation, as outlined.

Doctor Kress then informed the Council that the printing of the draft of the Constitution and By-Laws was completed and ready for presentation to the House of Delegates.

**8. Annual Assessment.**—Discussion was had as to the annual assessment of the Association for the coming year.

Action by the Council.—On motion of Phillips, seconded by Kelly, it was

Resolved, That the present annual assessment of \$10 prevail for the next year.

**9. Annual Meeting.**—Invitations from various cities inviting the California Medical Association to hold its next session at such cities was presented. Letter from the secretary of the San Diego County Society inviting the Association to hold its next meeting at Coronado was read.

Action by the Council.—On motion of Catton, seconded by Kelly, it was

Resolved, That the 1929 annual session of the California Medical Association be held at Coronado.

Discussion was then had as to the date of the meeting. Doctor Catton advised that a poll was being taken in the various sections on the question of fall or spring meeting. Doctor Phillips then stated that a poll would also be taken at the House of Delegates.

Action by the Council.—On motion of Peers, seconded by Catton, it was

Resolved, That the president be requested at the meeting of the House of Delegates tonight to advise that it is the opinion of the Council that the meeting for 1929 be set as the first week in October and that the president request a standing vote of the House of Delegates to ascertain if there is any difference of opinion on the matter; and that he advise that a poll is also being taken in the various sections.

Discussion was then had as to the length of the next annual session and whether a three or a four-day meeting was desirable.

Action by the Council.—On motion of Phillips, seconded by Kelly, it was

Resolved, That the length of the annual session be four days.

**10. County Hospitals.**—Percy T. Phillips informed the Council that since the general counsel had been ill, no further investigations had been made on the matter of county hospitals and requested that the question be passed at this time.

**11. Woman's Auxiliary.**—The matter of the formation of a Woman's Auxiliary was again brought up and on motion of Phillips, seconded by Kelly, it was

Resolved, That the Council recommend to the House of Delegates the formation of such an auxiliary.

**12. Adjournment.**—There being no further business the meeting adjourned to meet in the same place at 2:30 p. m., Wednesday, May 2, 1928.

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### Minutes of the One Hundred and Seventy-Sixth Meeting of the Council of the California Medical Association

*Approved at the One Hundred and Seventy-Eighth Meeting of the Council*

Held in Room 242 of the Senator Hotel, Sacramento, California, Wednesday, May 2, 1928, at 2:30 p. m.

**Present.**—Doctors Kiger, Gibbons, Kelly, Hamlin, Kinney, Duffield, Bingaman, DeLappe, Shephard, Coffey, Harris, Rogers, Peers, Catton, Kress, Shoemaker, Curtiss, Popc, and Mr. Barfield, attorney.

**Absent.**—Doctor Phillips.

**1. Call to Order.**—The meeting was called to order by the Chairman, Morton R. Gibbons.

**2. Minutes of the One Hundred and Seventy-Third Meeting of the Council.**—The secretary read the minutes of the one hundred and seventy-third meeting of the Council. Discussion was then had on that portion of the minutes dealing with the manner of presentation of the Constitution and By-Laws to the House of Delegates.

Action by the Council.—On motion of Kelly, duly seconded, it was

Resolved, That the resolution of Doctor Catton regarding the presentation of Constitution and By-Laws be stricken from the minutes.

Action by the Council.—On motion of Kelly, duly seconded, it was

Resolved, That the minutes of the one hundred and seventy-third meeting of the Council be approved as amended.

**3. Medical Practice Act.**—Doctor Kress stated that in view of the facts as presented by Mr. Heron, it did not seem advisable to make any recommendations to the House of Delegates at this time on the Medical Practice Act.

**4. Welfare Committee.**—Martha Welpton, chairman of the Welfare Committee, presented the report of her committee giving its activities throughout the year.

Action by the Council.—On motion of Kelly, seconded by Catton, it was

Resolved, That the report of the Welfare Committee be accepted with thanks for the services rendered.

**5. Minutes of the One Hundred and Fourth Meeting of the Executive Committee.**—The secretary presented the minutes of the one hundred and fourth meeting of the Executive Committee.

Action by the Council.—On motion of Catton, seconded by Coffey, it was

Resolved, That the minutes of the one hundred and fourth meeting of the Executive Committee, as mailed to all councilors, be approved.

**6. Committee on the History of the California Medical Association.**—The report of Emmet Rixford, chairman of the Committee on the History of the California Medical Association, was read. Doctor Rixford recommended the printing of the report of Dr. R. F. Rooney in the journal, since it would serve as an example of the type of report desired from all counties and also was very interesting reading matter. It was stated that Henry Quigley had prepared a history of Downieville and Guy Jones had accumulated enough data for half a volume, and that some of this matter might be of interest to the committee.

Action by the Council.—On motion of Kelly, seconded by Kress, it was

Resolved, That the report be adopted with the recommendations as outlined.

**7. Affiliate Members.**—Letter from C. M. Burchfield, secretary of the Santa Clara County Medical Society, requesting that affiliate membership be granted Charles A. Short, M. D., and Blake Franklin,



M. D., was read, and discussion ensued as to the qualifications of affiliate membership.

Action by the Council.—On motion of Kress, seconded by Duffield, it was

Resolved, That in granting affiliate membership to any member as permissible under Article 3, Section 3 of the Constitution, the Council shall do so only by proper resolution in each affiliate membership so considered, in which resolution the reasons and conditions governing such grant of affiliate membership, are stated; and be it further

Resolved, That at any time that the reasons for granting such affiliate membership shall cease the member shall automatically cease to be an affiliate member of this Association.

Action by the Council.—On motion of Coffey, seconded by Peers, it was

Resolved, That Charles A. Short, M. D., and Blake Franklin, M. D., be granted affiliate membership in the California Medical Association on account of illness.

Action by the Council.—On motion of Kress, duly seconded, it was

Resolved, That Harlan Shoemaker consult with Granville MacGowan, with power to act, and report back to the Council.

8. **Legislative Committee.**—Doctor Shoemaker reported that the present activities of the Legislative Committee consisted of watching the various legislation before Congress and keeping our Senators and Representatives informed.

Action by the Council.—On motion of Catton, seconded by Peers, it was

Resolved, That the report of the committee be accepted.

9. **Councilor Visits.**—Kinney—First District: I have visited four societies in my district. I have been very much pleased, as I have seen them at work.

Riverside is meeting its problem of attendance interest by running symposiums taking a subject like "angina" and trying to cover definite phases of interest to men in private work.

San Bernardino is having one local and one outside speaker each month. The local papers are well prepared and well presented.

Imperial meets the problem of a small membership scattered over a large territory by meeting one month in one town and the next month in another, etc. The men in the town where the meeting is to be held are responsible for the program. They show a very live interest. San Diego meets with them about once a year.

San Diego has been exceptionally fortunate in the men they have had as speakers. Dr. Henry Sevell of Denver, Dr. Allan Krause, Doctor Kerr of San Francisco, as well as many other outside speakers, have addressed us. Throughout the county there has been exceptional interest in the problems of the society.

10. **Adjournment.**—There being no further business the meeting adjourned to meet in the same place at 8 a. m. Thursday, May 3, 1928.

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#### Minutes of the One Hundred and Seventy-Seventh Meeting of the Council of the California Medical Association

#### Approved at the One Hundred and Seventy-Eighth Meeting of the Council

Held in Room 242 of the Senator Hotel, Sacramento, California, Thursday, May 3, 1928, at 8 a. m.

**Present.**—Doctors Phillips, Kiger, Gibbons, Kelly, Hamlin, Kinney, Duffield, Bingaman, DeLappe, Harris, Rogers, Peers, Catton, Shephard, Harris, Kress, Shoemaker, Curtiss, Pope, and Mr. Barfield, attorney.

**Absent.**—Doctor Coffey.

1. **Call to Order.**—The meeting was called to order by the chairman, Morton R. Gibbons.

2. **Adjournment of the 1927 Council.**—On motion of Shoemaker, seconded by Kelly, it was

Resolved, That the 1927 Council adjourn *sine die*; that the 1928 Council convene and that the secretary call the roll.

**Present.**—Doctors Kiger, Gibbons, Kelly, Hamlin, Pallette, Kinney, Duffield, Bingaman, DeLappe, Harris, Rogers, Peers, Catton, Shephard, Kress, Shoemaker, Curtiss, Pope, and Mr. Barfield, attorney.

**Absent.**—Doctor Coffey.

3. **Election of Chairman.**—President William H. Kiger was asked to take the chair until a chairman of the Council was elected.

Action by the Council.—On motion of Duffield, seconded by Kelly, it was

Resolved, That Oliver D. Hamlin of Oakland be elected chairman of the Council for the ensuing year. Doctor Hamlin then took the chair.

4. **Appointment of the Secretary.**—On motion of Peers, seconded by Kelly, it was

Resolved, That Emma W. Pope of San Francisco be appointed to succeed herself as secretary of the Association for the ensuing year, at her present salary.

5. **Appointment of the Editor.**—On motion of Gibbons, seconded by Kelly, it was

Resolved, That Dr. George H. Kress and Dr. Emma W. Pope be appointed as associate editors under the same provisions and conditions as set forth in the resolution of the Council adopted at its one hundred and sixty-sixth meeting, March 19, 1927.

6. **Appointment of the General Attorney.**—On motion of Kress, seconded by Kelly, it was

Resolved, That the present general counsel, Mr. Hartley F. Peart be reappointed to succeed himself for the ensuing year at his present salary.

7. **Edward M. Pallette.**—Edward M. Pallette of Los Angeles, vice-president of the Association, was introduced to the members of the Council by Dr. William Duffield.

8. **Appointment of the Assistant General Counsel.**

On motion of Kelly, duly seconded, it was

Resolved, That Hubert T. Morrow of Los Angeles be reappointed to succeed himself as assistant general counsel for the ensuing year at his present salary.

9. **Appointment of the Arrangements Committee.** The president of the Association, William H. Kiger, informed the Council that he had appointed as members of the Arrangements Committee for 1929, Mott Arnold, chairman; C. E. Rees and James F. Churchill.

10. **Date of Annual Meeting.**—Discussion was had as to the date of the fall meeting of the Council and it was decided that October 6, 1928, be set and the Biltmore Hotel, Los Angeles, be the place of meeting.

11. **Date of 1929 Annual Meeting.**—Discussion was had as to the date of the 1929 annual meeting.

Action by the Council.—On motion of Kress, seconded by Kelly, it was

Resolved, That the date of the 1929 annual session be set as May 6 to 9, 1929, inclusive.

12. **Annual Dues.**—Resolution of Doctor Spiro regarding the reduction of dues of the Association whenever the membership shall reach 75 per cent of the total licensed physicians and surgeons in California was discussed, and it was pointed out that it was impossible to make recommendations on a contingency which did not exist.

Action by the Council.—On motion of Gibbons, seconded by Kress, it was

Resolved, That because the Council has not the authority to set dues for future years and because the contingency referred to in the resolution does not exist, the resolution be filed.

13. **Redistricting Councilor Districts.**—The resolution presented at the House of Delegates requesting consideration of the matter of redistricting councilor districts was discussed.

Action by the Council.—On motion of Rogers, duly seconded, it was

Resolved, That a committee of three members of the Council be appointed to make investigations in



their respective sections and report to the Council at its fall meeting.

**14. Councilor Visits.**—Duffield—Second District: Doctor Duffield reported on a meeting held at Ventura at which conditions of the county hospital were discussed. I did not visit Orange County. I think you are all familiar with the fact that Los Angeles has a large, growing, strong organization. The bone of contention seems to be the \$100 initiation fee. A great many men from Los Angeles claim they have not joined the Association on account of the fee. The men who are in the Association realize the value of membership and organization, and if we can convince those outside of this, we will largely increase our membership.

Bingaman—Third District: I have nothing new to report. Everything is very satisfactory in Monterey and Salinas. We have had Doctor Phillips with us and he gave a very interesting talk. On account of the geographical situation of the counties it is difficult to have well-attended meetings. Some of the men have to come one hundred and forty miles to attend a meeting. When we have meetings in Salinas the near-by men are there. As far as possible we hold meetings at different points. A fairly large portion of the physicians in the counties belong to the different societies.

DeLappe—Fourth District: I have visited every society in my district except Tulare. Their meeting was Sunday afternoon and I was unable to attend. The membership of all my societies is a little better than in the average society. Special speakers are secured for the meetings and they are well attended. I have heard expressions on the condition of the journal, and it is the unanimous view that it is in better condition than ever before.

Hamlin—Seventh District: In the Seventh District I have four counties: Alameda, San Joaquin, Contra Costa, and Calaveras. I have visited San Joaquin three times during the year—twice alone and once with Mr. Peart. San Joaquin County has some complications. Their county hospital presents a problem. However, I am glad to hear from Doctor Barnes that conditions at present are much better. Many well-to-do people are being cared for in their county hospital. Through the efforts of Mr. Peart and through some experience I have had in organizing the social service work in Alameda during the past ten years, I have been able to give some advice. In Alameda County we have a new hospital where we take the average patient after investigation and make no charge. We are endeavoring to keep down the able-to-pay problem. The social service in Alameda has been able to care for admissions so far. I think Contra Costa is the most harmonious society in the Association. There are fifty-seven doctors in the county, and thirty-three are members. Through the efforts of the doctors a new private hospital is being built. There is one county hospital where all the doctors are on the staff. By having a private hospital they hope to take care of the part-pay patient. I have not visited Calaveras County. There are but five doctors in the county.

Harris—Eighth District: In Sacramento the county has recently built a new county hospital, which is not yet completed. The man who is most interested in the project takes great pride in the hospital. We have a social service system similar to Alameda County. We do not take part-pay patients. Yuba-Sutter is getting along nicely. Recently some new members have come into the society and livened up matters and we look for interesting meetings from now on. Shasta is working together much better than in the past. In Lassen-Plumas it is difficult to get the men together for a meeting, they are so widely separated.

Rogers—Ninth District: I have been a little lax in my visits. Several societies do not hold meetings during July and August, and some hold no meetings during the winter months. I intended visiting Solano

last fall, but had to call the visit off on account of sickness in the family. Joint meetings are held between Sonoma and Mendocino. Napa and Sonoma also hold joint meetings. Sonoma has recently taken in several new members, and there is more harmony in the county. Napa has a little problem. There is a sanitarium there which has recently inaugurated a service in obstetrics in order to give its nurses training in obstetrics, and this is causing friction among the doctors. In Mendocino it is hard to get the doctors together. In the northern counties the emergency patients from automobile accidents present a large problem. Eighty-five per cent of the patients leave the hospitals without payment of expenses and are never heard of again. In Marysville the service clubs will guarantee payment of the emergency cases in case the patient does not pay.

**15. Emergency Hospital Care.**—After discussion of the problem of unpaid expense of emergency cases treated at hospitals, on motion of Rogers, seconded by Gibbons, it was

Resolved, That a special committee of three members be appointed to study conditions developing through the state in connection with emergency automobile accident cases.

**16. Councilor Visits.**—Shepherd—Fifth District: The membership in Santa Clara County represents a better average than most of the counties in the society. Nearly every man in practice in Santa Clara County who has been a resident for six months is a member of the society. We have recently revised the Constitution and By-Laws of our society. We are working on a plan of extension of education. During the last three years we have had lecture courses given under the supervision of the San Jose Hospital Association to which 50 per cent of the members of the society belong. We have brought men from the East to give lectures. This is being very heartily supported. Santa Cruz is well taken care of. San Mateo County is complaining against some of the members of San Francisco County on account of a hospital located at South San Francisco which is taking many patients from San Mateo. San Benito County is divided into various factions, and it is impossible to get them together. I believe it would be better if San Benito were transferred to another district. It might be well if they were permitted to meet with Salinas.

**17. Constitution and By-Laws.**—Doctor Kress stated that the type used in setting up the latest revision of the Constitution and By-Laws was being held and that it might be advisable to ship it to San Francisco if it were decided to print this revision in CALIFORNIA AND WESTERN MEDICINE.

Action by the Council.—On motion of Gibbons, seconded by Duffield, it was

Resolved, That the remarks of Doctor Kress be referred to the new Committee on Constitution and By-Laws, which is to be appointed, and that the printer be asked to hold the type.

**18. Adjournment.**—There being no further business the meeting adjourned.

MORTON R. GIBBONS, *Chairman.*

EMMA W. POPE, *Secretary.*

## COMPONENT COUNTY SOCIETIES

### CONTRA COSTA COUNTY

The Contra Costa County Medical Society held its regular monthly meeting October 13 at the Abbott Emergency Hospital, Richmond. This meeting was especially interesting and educational as a result of the addresses of two prominent San Francisco doctors, Doctor Lisser and Doctor Shepardson.

Doctor Lisser gave a paper on the "Contra Costa Goiter Survey of the High Schools of Contra Costa County." He pointed out the interesting fact that there is a low rate of goiter among the high school



children of this county, the rate being 2.42 per cent of those examined.

Miss Rachael Miller, school nurse of the county, spoke also, thanking Doctors Lisser and Shepardson for their painstaking work in the survey.

Doctor Shepardson gave a very instructive paper entitled "Treatment of Diabetic Coma."

Dr. J. F. Feldman was voted a member of the society.

Luncheon at Martin's Grill was enjoyed at the close of the meeting.

S. N. WEIL, *Secretary*.

#### FRESNO COUNTY

The October meeting of the Fresno County Medical Society was held on the second of the month at the California Hotel, Fresno.

Dr. Eugene Kilgore of the University of California gave an impressive talk on "The Diagnosis of Common Heart Disease." The lecture was illustrated by a number of very interesting electrocardiographic tracings. The history of each case was first given, then the electrocardiogram explained. Doctor Kilgore made it clear that the history and clinical examination of the patient were more important than the electrocardiographic work. However, in certain mild cases where there is a slight pain in the cardiac region the cardiographic tracing is valuable to determine the seat of the lesion.

The paper was discussed by Doctors C. O. Mitchell, R. B. Tupper, and G. A. Hare.

JOHN M. FRAWLEY.

#### SAN BERNARDINO COUNTY

Minutes of the meeting of the San Bernardino County Medical Society held at the County Hospital October 2.

Dinner was served at 7 p. m. There were about sixty present, a great majority of whom were our county medical society members. After dinner the meeting was opened by the reading of the minutes of the previous session. There being no business to bring before the meeting the election of officers was held. The nominations follow:

President, Dr. F. F. Abbott. Nominated by Dr. P. Savage, seconded by Dr. C. Hilliard.

First vice-president, Dr. W. Pritchard. Nominated by Dr. C. Hilliard, seconded by Dr. Moseley.

Second vice-president, Dr. D. C. Mock. Nominated by Dr. E. W. Burke, seconded by Dr. S. Richards.

Secretary-treasurer, Dr. E. J. Eytinge. Nominated by Dr. A. Gage, seconded by Dr. H. Hill.

Delegates to state medical society—Dr. G. Moseley, nominated by Dr. F. Abbott, seconded by Dr. P. Savage; Dr. F. F. Abbott, nominated by Dr. M. White, seconded by Dr. S. Richards.

Alternates to state medical society—Dr. E. L. Tisinger, nominated by Dr. J. Evans, seconded by Dr. C. Hilliard; Dr. S. Richards, nominated by Dr. C. Whitmer, seconded by Dr. G. Moseley.

Upon motion by Doctor Folkins and seconded by Doctor Richards, the secretary was instructed to cast one ballot and the above were declared elected. The retiring president inducted the incoming president to his office. Upon motion by Doctor Whitmer and seconded by Doctor Moseley the dues for the ensuing year were fixed as \$15. Upon motion by Doctor Gage and seconded by Doctor Hilliard the secretary was instructed to write a letter to the Board of Supervisors thanking them for their part in making this meeting possible. The address of the retiring president, "The Trend of Medical Practice," was given, and followed by that of Mr. Walter Hartzell, "The Physician and the Law." After a brief speech by the incoming president the meeting was adjourned at 10 o'clock.

E. J. EYTINGE, *Secretary*.

#### SAN DIEGO COUNTY

The new sanitarium in San Diego County, built on the cottage plan, for the treatment of tuberculosis in its various forms and for other diseases of the respiratory tract is an institution of much promise. Situated on a ten-acre tract at Alpine, about thirty miles east of San Diego, at an elevation slightly over two thousand feet, no more ideal location could be found for such a purpose, and we feel sure that under the careful direction of Dr. Rolph Barkema this institution will fill a field of much usefulness.

The first program furnished after the summer recess by the staff of the San Diego County General Hospital was one of varied clinical interest. Several interesting cases of middle ear infections from the children's ward illustrated how easy it is to center our minds on the nutrition of the child to the exclusion of extraneous infections. A very interesting case of atypical anemia was reported with autopsy findings suggesting a probable case of Gaucher's disease.

The October monthly dinner of the medical society was featured by some interesting moving-picture reels illustrating in detail the manufacture of diphtheria and scarlet fever antitoxins and the vaccines of smallpox and typhoid fever. Also the story of cod-liver oil was entertainingly told in moving pictures.

ROBERT POLLOCK.

#### SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held Thursday evening at 8:30 p. m., October 4, in the hall of the Medico-Dental Club, 242 North Sutter Street.

The meeting was called to order at 8:30 p. m., Dr. John J. Sippy presiding. Twenty-one members were in attendance. Doctors R. J. Millzner and Lewis Gunther of San Francisco, guests and speakers of the evening.

The minutes of the previous meeting were read and approved.

A communication from J. W. Davidson, special agent of the Board of Medical Examiners for prosecuting illegal practitioners, calling attention of the society to the excellent cooperation he received from the City Attorney's office and Judge Cecil Johnson of the Police Court, was read and ordered filed.

The chair presented Doctor Millzner, who gave an excellent discussion of the "Injection of Varicose Veins." He illustrated his talk by lantern slides.

Doctor Gunther spoke on "The Radicular Syndrome in Hypertrophic Osteoarthritis of the Spine."

The radicular syndrome of spinal osteoarthritis is characteristic enough in its manifestation to be recognized as such and to be differentiated from visceral diseases which it may simulate, and from the visceral diseases which it sometimes masks by its outstanding symptom pain.

The chair remarked that the society was very fortunate in having heard these talks and that we were much indebted to the doctors for their clear, concise and practical discussions of their subject, and deemed it a pleasant privilege to express the appreciation and thanks of the society to the speakers of the evening.

There being no further business the meeting adjourned at 10 p. m.

FRED J. CONZELMANN, *Secretary*.

#### SANTA CRUZ COUNTY

The society met in the clubroom at the Casa del Rey September 26, at which time Dr. T. Henshaw Kelly of San Francisco presented a paper on "The Conduct of Labor." In addition to a general consideration of the subject, the more common complications were discussed. The technique described is that used successfully by Doctor Kelly and Dr. R. K. Smith and, although differing in some particulars from the more or less stereotyped textbook methods, it im-



pressed the audience as being practical and efficient. We appreciated having Doctor Kelly with us and unanimously recommend his paper to any group which will appreciate a practical and instructive evening devoted to the subject of obstetrics.

The new tuberculosis pavilion at the Santa Cruz County Hospital opened October 1 with the admission of six patients. The unit is located in the vicinity of the county hospital group and has a patient capacity of sixteen beds. Provision is thus made for the indigent cases of tuberculosis in Santa Cruz County.

SAMUEL B. RANDALL, *Secretary*.

## CHANGES IN MEMBERSHIP

### New Members

Los Angeles County—Ferris Arnold, I. S. Clark, F. C. Hertzog, C. C. Tolleson, V. Ray Townsend, Long Beach; Wilmot Ayres, H. Marlin Beerman, R. Emerson Bond, Lloyd A. Burrows, LeRoy S. Campbell, Marcus Goodwin, C. Edward Harris, Stanley W. Imerman, Linford Henry Lee, Edward S. Lodge, Louis I. Melnick, John Bertram Peterson, Arthur E. Smith, Reginald L. Sturges, Albert D. Leiser, Los Angeles; Marvel Beem, Sawtelle; Henrietta Frederickson, Pasadena; Arthur E. Guedel, Wyant LaMont, Beverly Hills; Walter W. Horst, Wilmington; Ralph W. Schaeffer, Redondo Beach.

San Diego County—Frances E. Toomey, San Diego.

San Francisco County—Theodore L. Althausen, Bernard A. Cody, Mendel L. Cohn, J. Gordon Henderson, John P. Hickey, Albert L. Leveton, Dell T. Lundquist, Francis Justin McCarthy, Victor C. McPhee, Margaret Clare Malone, John Jay O'Connor, James C. Parrott, Raymond R. Scott, Paul E. Suehs, Jean B. Wilson, San Francisco; Thomas M. Potasz, Northville, Michigan.

San Mateo County—James P. H. Dykes, Redwood City; Olin M. Holmes, San Mateo.

Santa Clara County—Earl O. G. Schmitt, Gilroy.

Ventura County—William Felberbaum, Santa Paula; Asa B. Carmichael, Robert M. Jones, Ventura.

### Transferred Members

Frank E. Blaisdell, Jr., from Ventura to Santa Barbara County.

Mark A. Glaser, from San Francisco to Los Angeles County.

H. M. Kanner, from San Francisco to Sacramento County.

Reinhard V. Looser, from Yolo-Colusa to San Joaquin County.

Dell T. Lundquist, from San Francisco to Santa Clara County.

L. J. Schermerhorn, from California to Michigan.

Alden C. Thompson, from San Bernardino to Santa Clara County.

### Deaths

**Fundenberg, George B.** Died at Los Angeles, October 5, 1928, age 65 years. Graduate of Medical School University of Pennsylvania, 1887. Licensed in California, 1912. Doctor Fundenberg was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

**Juell, Nils Roth H.** Died at Santa Rosa, August 25, 1928, age 78 years. Graduate of Rush Medical College, Illinois, 1884. Licensed in California, 1914. Doctor Juell was a member of the Sonoma County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

**Kline, Max Otto.** Died at Los Angeles, September 22, 1928, age 30 years. Graduate of University of Pennsylvania, 1921. Licensed in California, 1923. Doctor Kline was a member of the Los Angeles County Medical Association and a Fellow of the American Medical Association.

**Sanders, Harold Armstrong.** Died at Los Angeles, March 8, 1928, age 49 years. Graduate of New York

Homeopathic Medical College, 1905. Licensed in California, 1919. Doctor Sanders was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

**Simpson, William.** Died at San Jose, September 23, 1928, age 82 years. Graduate of Long Island College Hospital, New York, 1878. Licensed in California, 1881. Doctor Simpson was a member of the Santa Clara County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

## UTAH STATE MEDICAL ASSOCIATION

WILLIAM D. DONOHER, Salt Lake.....President  
H. P. KIRTLEY, Salt Lake.....President-Elect  
M. M. CRITCHLOW, Salt Lake.....Secretary  
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....  
.....Associate Editor for Utah

### OFFICIAL NOTICE

The attention of the secretaries of all component societies is called to our desire to make the Utah section of CALIFORNIA AND WESTERN MEDICINE a mirror of all the medical activities of the state.

The assistant editor for Utah again invites each society of the state to instruct the secretary to forward news of society meetings to the editor at 701 Medical Arts Building, Salt Lake City, not later than the tenth of each month.

Thus far three of the component units have been pleased to cooperate. Salt Lake, Weber, and Utah counties are represented now monthly. Utah colleagues not living in Box-Elder and Cache counties would be pleased to read of the activities of the component societies of those counties. We hope for representation by them in an early issue.

## COMPONENT COUNTY SOCIETIES

### SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held in the L. D. S. Hospital, Salt Lake City, Monday, September 10.

The meeting was called to order at 8 p. m. by President W. F. Beer. Fifty-seven members were present. Minutes of the meetings of June 11 and June 28, were read and accepted without correction.

Application for membership in the society of Dr. M. E. Bird of Murray, Utah, was read and referred to the board of censors.

The meeting was devoted to a clinic of interesting cases from the hospital presented by members of the staff as follows:

Dr. J. F. Sharp, case, cesarean section with history of rupture of the uterus on two occasions.

Dr. C. R. Cornwall presented a woman with double tertian type of malaria.

Dr. O. J. LaBarge, case of Mexican with malaria, and outlined the life cycle of the Anopheles mosquito.

Dr. LeGrand Woolley presented two case histories.

Dr. Fred Stauffer presented a woman upon whom he had recently done a right external radical frontal sinus operation.

For Dr. J. E. Tyree, Dr. D. B. Gottfredson presented a specimen of hemangioma of the liver.

Adjournment at 9:35 p. m., after which refreshments were served by the hospital.

EDW. D. LeCOMPTE, *Acting Secretary*.

\* \* \*

The regular meeting of the Salt Lake County Medical Society was held in the Medical Arts Building, Salt Lake City, Monday, September 24.

The meeting was called to order at 8:15 p. m. by

President William H. Beer. Thirty-three members and one visitor were present.

Minutes of the previous meeting were read and accepted without correction.

J. H. Peck of Toosle presented a specimen of a very large placenta.

The paper of the evening was read by F. F. Hatch and dealt with partial gastric resection under local anesthesia. His paper was very complete, discussed the indications and the technique, and was illustrated in detail by lantern slides.

This very interesting paper was discussed by E. F. Root, R. T. Richards, F. D. Spencer, T. C. Gibson, and L. A. Stevenson.

Adjournment at 9:20 p. m.

M. M. CRITCHLOW, *Secretary*.

\* \* \*

The regular meeting of the Salt Lake County Medical Society was held at the Hotel Utah, Salt Lake City, Monday, October 8.

At 7 p. m. dinner was served, where the members had an opportunity of getting better acquainted with each other. The appetite was whetted by orchestral selections.

The scientific meeting was called to order at 8:15 p. m. by President William F. Beer. There were seventy-eight members and four visitors present.

Minutes of the previous meeting were read and accepted without correction.

The society was very fortunate in having two San Francisco guests as their speakers. D. W. Sooy, surgeon for the Southern Pacific Railroad, read a very thorough paper on "Clinical Considerations of Goiter." His paper covered the history, classification, pathology, treatment, postoperative treatment, complications and precautions to be taken to avoid complications. The subject was covered in a masterly manner, and was discussed by E. F. Root, R. T. Richards, W. D. Donohoe, and L. A. Stevenson.

The second paper was on "Peptic Ulcer" by James Guilfoil, gastro-enterologist of the Southern Pacific Railroad. His paper was based on a series of one hundred patients treated at the Southern Pacific Hospital. They were thoroughly worked up, checked and rechecked. He discussed the basis for symptoms, the causes of pylorospasm, the complications and the indications for surgery. He concluded his paper with a discussion of the treatment emphasizing the importance of rest. This paper was extremely interesting and covered the subject as completely as possible in such a short time. The paper was discussed by G. G. Richards, F. B. Bailey, G. A. Cochran, F. F. Hatch, and Ralph Tandowsky. D. W. Sooy closed the subject with some remarks on gastric surgery.

President Beer appointed L. N. Ossman to represent the Salt Lake County Medical Society coöperating with the state committee on public policy.

President Beer appointed John F. Sharp on the Committee to Revise the Fee Schedule in the place of the late Doctor Calongc. J. P. Kerby was made chairman of this committee.

Adjournment at 10:45 p. m.

Many of the members expressed their satisfaction with the meeting, and suggested that similar meetings be held from time to time in the future.

M. M. CRITCHLOW, *Secretary*.

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#### UTAH COUNTY

The first of the winter meetings of the Utah County Medical Society was held at the Hotel Roberts, Wednesday, September 26, at 6:30 o'clock.

As usual the function began with a dinner, after which the scientific program was held.

This consisted of two papers: first, "Pick-Ups at the Mayo Clinic," presented by Walter T. Hasler; second, "Some General Points of Interest from the Meetings at Denver," given by L. W. Oaks.

Miss Harris, Provo City school nurse, gave an address for the consideration of the members, covering her ideas of home cases and what advice she should

be permitted to give to patients whom she visited in the home. The thought of this talk was to establish a closer liaison between the members of the society and the nursing service in the public schools, in order that the work of both might be harmonized.

ARNOLD E. ROBISON, *Secretary*.

⌘

#### WEBER COUNTY

Meeting of the Weber County Medical Society was held September 20, at the Hotel Bigelow, President W. R. Brown presiding. Minutes of the previous meeting were read and approved.

The usual dinner preceded the meeting. Dr. R. A. Pearse of Brigham City invited the Weber County Medical Society to meet with the Box-Elder County Medical Society at 7 p. m. on October 10. This was unanimously accepted and Dr. W. R. Brown thanked the Box-Elder County society for the invitation. It was voted that this meeting at Brigham City is not to replace our regular meeting.

A letter from Superintendent Hopkins asked that in addition to the routine examination of the school children by the society, the work include any vaccination or inoculation of new children. The society went on record, however, as being opposed to doing more than giving each child a complete examination. Dr. R. L. Draper asked that the examination be made a uniform one, and that we use the cards sent out by the school board.

Applications of Doctors Vernon S. Downs and George W. Buchanan were read; both had been approved by the board of censors and both were unanimously admitted to membership.

Dr. Ezra C. Rich moved on behalf of the American Legion that a donation of \$150, to help defray the expenses of the Legion drum corps when they attend the Legion meet in Texas, be authorized. Seconded by Dr. J. R. Morrill. Dr. Edward I. Rich made an amendment to the motion that the amount be set at \$100. Discussion by Doctors N. H. Savage, L. R. Jenkins, and George M. Fister. A substitute motion by Dr. N. H. Savage that each doctor contribute voluntarily was unanimously passed.

The program for the evening consisted of two very interesting papers. Dr. Edward I. Rich reviewed his thirty-five years of obstetrical practice in Utah; during this time Doctor Rich has attended over four thousand deliveries. He recalled the many hardships encountered in the early days of his practice. This paper was very much enjoyed by the society. Dr. W. E. Whalen and Dr. Ezra C. Rich opened the discussion. Second paper, by Dr. V. S. Ward, was equally interesting. The subject was the "Asphyxiated Infant." This paper was discussed by Doctors L. A. Smith and Eugene Smith.

Dr. Eugene Smith presented a case of erythema infectiosum.

Meeting adjourned.

GEORGE M. FISTER, *Secretary*.

#### NEWS

The winter meetings of the Holy Cross Hospital Clinical Association opened auspiciously on the night of September 17, with a good attendance. Dr. O. S. Fowler of Denver, Colorado, presented a paper on "The Importance of the Ptosed Kidney—What Shall We Do with It?"

The doctor spoke at length and in an exceedingly interesting manner on this subject, presenting his own views on the best method of handling the displaced kidney, and illustrating his technique of using fascial strips as suture material for the surgical attack on the problem rather than the materials now more commonly used.

It is desired to extend an invitation to all members of the association to bring nonmembers to these meetings as their guests. Secretary Curtis has a lot of interesting material in sight for the meetings which will follow this first.



# MISCELLANY

From time to time in this department of California and Western Medicine, appear columns grouped under the following headings: Comment on Current and Recent Articles in this Journal; News; Medical Economics; Readers' Forum; California State Board of Health; and California Board of Medical Examiners. For Book Reviews, see index on the front cover, under Miscellany.

## NEWS

**University of California Doctors Plan Alumni Celebration.**—Physicians from every part of the state who are graduates of the University of California medical school, will gather in San Francisco on Friday, November 23, to participate in an Alumni Day celebration, in preparation for the big game between Stanford and California, Saturday, November 24.

In making announcement of this celebration, Dean Langley Porter of the medical school explained that the custom of holding alumni days semiannually, was inaugurated last spring. Each spring gathering will be held at the University Hospital, and each fall gathering on the day before the big game, will be held at the San Francisco City and County Hospital.

\* \* \*

**Program Semiannual Alumni Day, Friday,  
November 23, San Francisco Hospital,  
Twenty-Second and Potrero Avenue**

### MORNING SESSION

#### DEPARTMENT OF SURGERY

##### 9-12 A. M. OPERATIVE CLINICS

East and West Amphitheaters. Drs. H. Brunn, G. K. Rhodes, A. R. Kilgore, H. Fleming, C. L. Callander, S. H. Mentzer, O. W. Jones, W. B. Faulkner, E. C. Bull, F. C. Linde, J. L. Loutzenheiser, R. Soto-Hall. Thoracoplasty; Phrenectomy; Partial Gastric Resection; Cholecystectomy; Radical Mastectomy; Open Reduction of Fractured Femur.

#### DEPARTMENT OF GYNECOLOGY AND OBSTETRICS

##### 9-11 A. M. OPERATIVE CLINIC

Operating Room No. 3. Drs. William G. Moore and Margaret Schulze. Pelvic Inflammatory Disease; Hysterectomy.

#### DEPARTMENT OF UROLOGY

##### 11-12 A. M. OPERATIVE CLINIC

Operating Room No. 4. Drs. S. Olsen, D. A. Charnock, H. D. Crall. Perineal Prostatectomy.

#### DEPARTMENT OF MEDICINE

##### 9-12 A. M. MEDICAL WARD ROUNDS

Wards E, B, J, and N, beginning on Ward E. Headquarters: Solarium of Ward E. Drs. L. H. Briggs, G. E. Hein, E. W. Twitchell, E. H. Bruck, H. C. Shepardson, Dorothy Atkinson, and R. Rabinowitz.

### EXHIBITS

#### 11:30-12 A. M.

Demonstration of Specimens of General and Surgical Pathology—Drs. G. Y. Rusk, L. W. Buck, and A. R. Kilgore.

Demonstration of Surgical Anatomic Drawings of Paths of Surgical Approach—Dr. C. L. Callander.

Interesting X-ray Findings—Dr. J. Levitin.

Exhibit of One Hundred Gall-Bladder Specimens—Dr. S. H. Mentzer.

Pathological Specimens of Obstetrical and Gynecological Interest—Drs. William G. Moore and Margaret Schulze.

### LUNCHEON

12 noon to 2 p. m. San Francisco Hospital.

### AFTERNOON SESSION

#### DEPARTMENT OF SURGERY

##### DISCUSSIONS

2:00-2:30 p. m. "Surgical Shock"—Dr. G. K. Rhodes.

2:30-3:00 p. m. "Gall-Bladder Disease"—Dr. S. H. Mentzer.

3:00-3:30 p. m. "Relation of Lues to Non-union of Fractures"—Dr. F. C. Linde, Intern H. M. Blackfield.

3:30-4:00 p. m. "Posture and Arthritis"—Dr. J. J. Loutzenheiser.

4:00-4:30 p. m. "Newer Conceptions in the Treatment of Osteomyelitis"—Dr. R. Soto-Hall.

4:30-5:00 p. m. "Fractures of the Skull"—Dr. H. W. Fleming.

### DEPARTMENT OF MEDICINE

#### DISCUSSIONS

2:00-3:00 p. m. "Demonstration of Unusual Cardiovascular Disease"—Dr. G. E. Hein.

3:00-4:00 p. m. "Problems in Tuberculosis"—Dr. Esther Rosencrantz.

**Universities to Honor Malpighi.**—In commemoration of the three hundredth anniversary of the birth of Marcello Malpighi, the Italy-America Society, the University of California, the Santa Clara University, and the Stanford University are uniting to honor Marcello Malpighi.

At a dinner to be given on the evening of November 14 at the Hotel Fairmont, Professor Carlo Fornicchi will speak on "The Italy of Malpighi's Day"; Brother Leo, S. J., on "Malpighi's Influence on Present Day's Thought"; Professor A. W. Meyer on "Malpighi as a Biologist—or Malpighi as a Biologist Sees Him"; and Dr. Chauncey D. Leake on "Malpighi as a Botanist and a Pathologist."

Members of the California Medical Association are cordially invited to participate in this celebration given to honor an illustrious scientist and fellow physician. Reservations should be made through the Italy-America Society, 312 Shreve Building, Garfield 4774.

**Lane Medical Lectures.**—In April, 1929, Professor Walther Straub of Munich will deliver the Lane Medical Lectures.

The titles of the lectures are as follows:

Pharmacology of Heavy Metals.

Chemistry and Pharmacology of Digitalis and Its Derivatives.

Recent Developments in Narcosis.

**United States Public Health Service—Eight Lepers Released as Apparently Cured.**—The Public Health Service has recently authorized the probational release of eight lepers from the National Leprosarium at Carville, Louisiana, as no longer a menace to the public health. These eight lepers have been under treatment at the national leper home for varying lengths of time, ranging from two years to seven years. It is of interest to know that leprosy, the dread disease of the centuries, is beginning to be conquered by improved modern scientific medical treatment.

The National Leprosarium at Carville, Louisiana, has been operated by the United States Public Health Service for a little more than seven years. During that time thirty-seven lepers have been released or paroled as being no longer dangerous to the public health. Only one of these lepers has suffered a relapse and has had to resume treatment. More than three hundred lepers are now under treatment at this institution.

## TWENTY-FIVE YEARS AGO \*

### EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume II, No. 1, November, 1903

From some editorial notes:

... Offensive Advertising.—The attention of our readers generally, but of the Committee on Legislation in particular, is earnestly called to an editorial in the Journal of the American Medical Association of July 4, entitled "A Law Against Nasty Advertising in Michigan." An amendment was added to the new Michigan Medical Practice Act authorizing "the Board of Registration in Medicine to revoke the certificate, after due notice and hearing, of any registered practitioner who inserts advertisements in newspapers, pamphlets, circulars, or other written or printed paper relative to venereal disease or other matter of an obscene or offensive nature derogatory to good morals." This amendment was made possible because of the thorough organization of the medical profession in Michigan. . . .

... Obligations of Officers.—Too long has the idea maintained that an office in a medical society is a delicately conferred compliment. If we are ever to lift ourselves out of the slough, to clean ourselves up and do the things that we ought to, each and every officer in each and every component society will have to awaken to the fact that there is something for him to do—in addition to making a nice little speech of acceptance of the honor conferred upon him. The only way to get anything done is to do it; the only way for us to build up and strengthen our organization is for every man to do what he agreed to when he accepted an office. . . .

... Illegal Practitioners.—One very important asset of complete organization of the medical profession is the ability to get rid of illegal practitioners. The illegal practitioner thrives well, when let alone, and is a menace to the community upon which he preys. . . .

... Credulous Doctors.—When the den of the biggest "get-rich-quick operator," as he was called by the press, was raided in New York, the fact was disclosed that by far the greater portion of his "clients" were drawn from the professions of medicine and theology; doctors and ministers were easy game. For a generation or two we physicians have been complacent; we have been good-natured and lazy; and we have been very credulous. . . .

From an article on The Correction of Refractive Errors, by W. S. Fowler, M. D., Bakersfield:

... The exercise of good judgment, and the utmost skill are necessary in the prescribing of lenses for any pair of eyes. . . .

... The correction of errors of refraction, then, consists of such measures as best establish equilibrium of the ocular organs and adapt them for the use to which they will be put, and these means consist of glasses properly prescribed, properly made and properly worn, as well as properly changed when changed conditions require a change in prescription, combined with such other therapeutic measures as are indicated. . . .

From an article on Corpulence of the Middle-Aged, by A. W. Perry, M. D., San Francisco:

... Obesity is 20 per cent to 40 per cent excess of weight over the normal of 2.05 pounds per inch of height, or 300 grammes per centimeter.

Corpulence must be due either to; first, excessive muscular development; second, excessive fatty tissue;

third, excessive water (serum) in the tissues; fourth, myxedema; fifth, pseudo-muscular hypertrophy. . . .

From an article on The Common Rat, by Donald H. Currie, M. D., U. S. Public Health Service, San Francisco:

... The rat is classified by zoölogists as follows: Class, Mammalia; order, Rodentia; family, Muridae; subfamily, Murinae, which contains over fifteen genera. Of these we have to deal with only one genus, namely, Mus. This genus alone, however, contains over one hundred species, but fortunately only three have any interest to the medical or general public. They are in order of their importance: Mus Decumanus, Mus Musculus and Mus Rattus.

... The female bears from fifteen to fifty young per year, which in turn are able to become mothers at five or six months of age. This wonderful productiveness, combined with its habits, ferocity, strength and cunning, make it proof against extinction by any of its natural enemies.

... The more common methods employed in the destruction of rats might be classed as follows: (1) poisoning with chemical substances; (2) infecting with Danyz's virus; (3) destroying by the use of predatory animals; (4) trapping; (5) killing with poisonous gases in confined areas; (6) construction of buildings and other methods tending to make entrance difficult or impossible; (7) use of substances disagreeable to the rat, causing him to leave a given locality; (8) the offering of rewards.

Camp Greenleaf and Fort Riley Alumni Reunion.—The third annual reunion and dinner of the alumni of Camp Greenleaf and Fort Riley will be held on Monday evening, November 12, 1928, at 6 p. m., at the City Club, 833 South Spring Street, Los Angeles.

The signal and significant success of our first reunion held on Armistice night, 1926, indicated very clearly that many medical officers who had received their military training at Camp Greenleaf and Fort Riley and were now living in the "land of sunshine and flowers," would welcome an opportunity of renewing the pleasant contacts and friendships made during the war.

The plan proposed at this meeting of having an annual celebration, therefore, received unanimous and enthusiastic support, and the writer was appointed to act as secretary.

All physicians who have been in any way connected with military services either in our own Army or under the colors of other nations are cordially invited to attend.

On the program a place will be reserved for any of our colleagues who would like to relate thrilling war experiences on land or sea.

Good fellowship will be the keynote of the program. Fuller particulars may be obtained from Lieutenant-Colonel High, Los Angeles General Hospital; Captain Sidney V. Kibby, Golden State Hospital, or the secretary, Captain John C. Copeland, 301 Story Building, Los Angeles.

Deaths from Smallpox.—Over 3000 deaths from smallpox were reported each month in India since January, 1928. From April to May the largest number occurred, 6672 deaths were reported.

The number of cases in England and Wales during those same months was in excess of 1000, according to the Public Health report of September 21, 1928, issued weekly by the United States Public Health Service.

Dr. Paul E. Bowers has been appointed professor of abnormal psychology and legal medicine at the Loyola University Law School. The second year in this course of study was started the 1st of October. He also addressed the Industrial Section of the Los Angeles County Medical Society on the subject of "Traumatic Hysteria."

\* This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.



# CALIFORNIA AND WESTERN MEDICINE

*Owned and Published Monthly by the California Medical Association*

1016 BALBOA BUILDING, 593 MARKET STREET, SAN FRANCISCO

ACCREDITED REPRESENTATIVE OF THE CALIFORNIA, NEVADA AND UTAH MEDICAL ASSOCIATIONS

VOLUME XXIX  
NUMBER 6

DECEMBER • 1928

50 CENTS A COPY  
\$5.00 A YEAR

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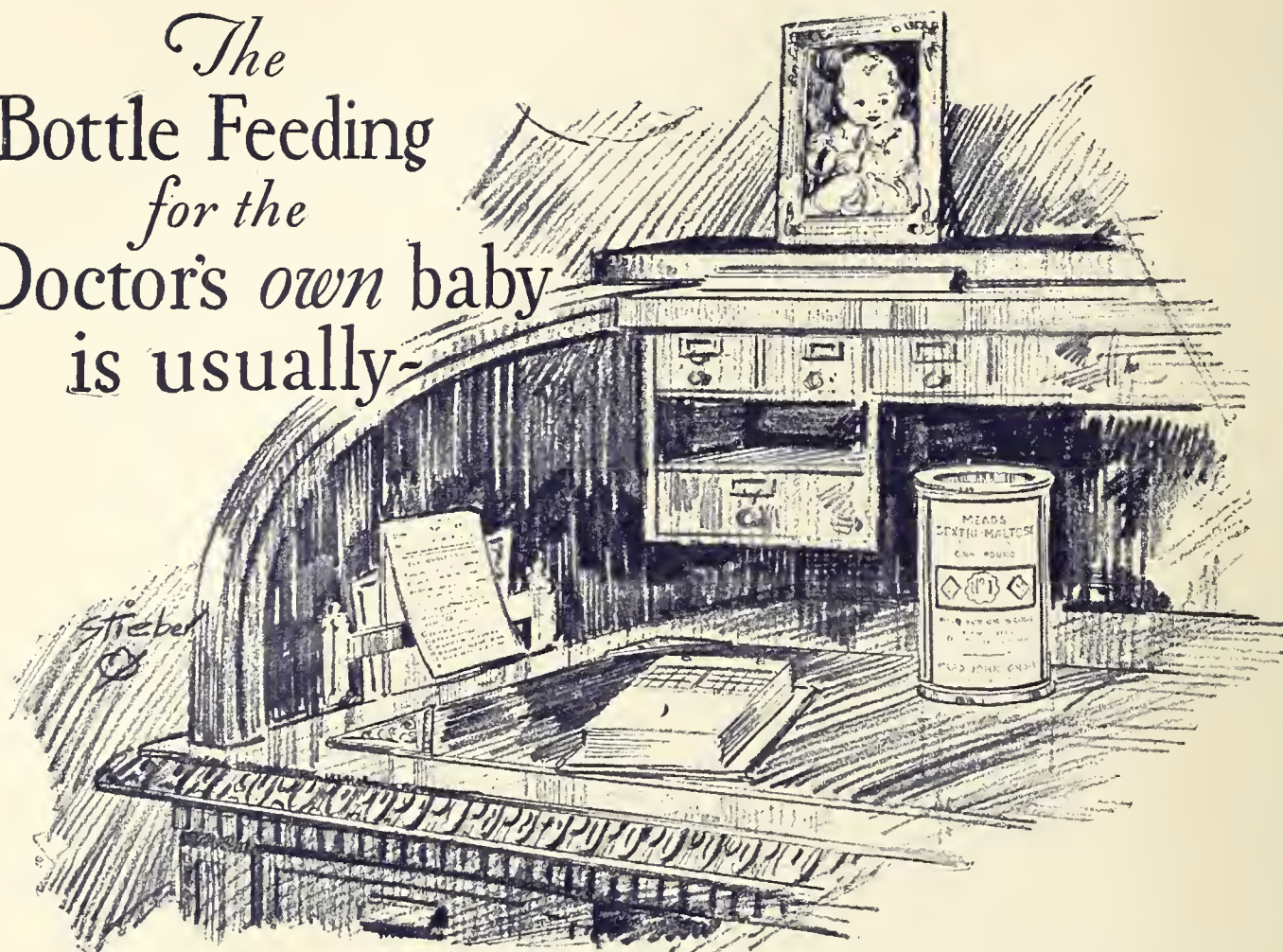
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# CALIFORNIA AND WESTERN MEDICINE

VOLUME XXIX

DECEMBER, 1928

No. 6

## LATE TRAUMATIC APOPLEXY\*

REPORT OF THREE CASES WITH OPERATIVE  
RECOVERY

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AND

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LATE traumatic apoplexy, "spätapoplexie," was first described by Bollinger in the year 1891. In regard to this condition he advanced the hypothesis, which is summed up as follows: (1) history of head injury with or without loss of consciousness; (2) degenerative changes, softening and necrosis taking place primarily in the brain stem and to a lesser extent in the cerebrum; (3) alterations in the walls of the blood vessels, in these areas leading to secondary hemorrhages, caused by the decreased resistance around the vessels with an increase in the arterial pressure; (4) death occurring between one and eight weeks after the injury.

This theory advanced by Bollinger was largely based on the experimental results and conclusions formed by Duret in his work on cerebral concussion.

### SUBSEQUENT VIEWPOINTS

Considerable discussion has been carried on since this time as to whether or not trauma can be responsible for the changes in the blood vessels, which finally leads to late hemorrhages. Most authors are of the opinion that late hemorrhage can occur, but conclude that up to the present time no definite pathologic evidence has been presented to prove the relationship between trauma and blood vessel changes, and secondly, the relation of the late hemorrhages to the trauma.

In view of the lack of this evidence most authors at the present time agree that there is a definite relationship between trauma, whether light or severe, to late central brain bleeding, though the mechanism leading to it is open to question.

A wide variety of cases have been included under the heading Traumatic Late Apoplexy. For example: such cases as middle meningeal hemorrhages, with symptoms appearing several days

after injury; cases of subdural hemorrhages, having a latent period of several days; cases in which the thrombosis of a cerebral vessel has given a picture comparable to that seen in late hemorrhage; and also cases in which hemorrhage has occurred ten to twelve years after a head injury. Although these cases fulfill many of the requirements first set forth by Bollinger they undoubtedly do not belong to the particular clinical group which he had in mind. Those having a latent period of years, have been considered as unrelated to trauma.

Bollinger's description included only those cases showing central brain bleeding, especially when this occurred in the brain stem. More recently, cases with delayed central brain bleeding, whether in the brain stem or cerebrum, have been classified under late traumatic apoplexy.

The question of the length of the latent period between injury and hemorrhage is usually agreed upon as varying between one day and eight weeks and hemorrhage occurring after eight weeks is not apt to be the result of the trauma, but to be due to other causes. This is not a hard-and-fast rule, but from a medico-legal standpoint it is of considerable importance.

### COMMENTS ON THREE CASES TREATED

We have had, in the past few years, experience with three cases, each of which had a history of head injury followed by a latent period, which in the first two cases was of short duration while in the third case it was longer. During the latent period there was a marked similarity of symptoms in all three cases.

The pathologic changes found in each case were of the same type, being located in the right cerebral hemisphere, in approximately the same area and varying only in degree and extent. Cases number one and two differ from case three only in the length of the latent period. Case three is to be regarded as typical of the condition called late traumatic apoplexy. All three cases, however, represent various stages of the same pathologic process.

### CASE REPORTS

CASE 1.—W. McN. A married man, forty-two years of age, mechanic, received a blow on the right temple from a flatiron wielded by his wife. There was a short period of unconsciousness followed by a return of consciousness, associated with a slight throbbing but increasing headache. X-ray examination showed an oblique linear fracture through the squamous portion of the right temporal bone, crossing the groove

\* From the Neurosurgical Clinic, University of California, San Francisco.

\* Read before the Neuropsychiatry Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

of the posterior branch of the middle meningeal artery. There was no evidence of a depressed fracture. In the next thirty-six hours increasing stupor developed and was associated with slowing of the pulse to 48 per minute, and with some irregularity of the respirations. With the increasing stupor a left hemiparesis of the face, arm, and leg appeared, with the characteristic neurologic findings of an incomplete left hemiplegia.

A diagnosis of middle meningeal hemorrhage was made. A right subtemporal decompression was performed twenty-four hours after the injury. An extremely tense but otherwise normally-appearing dura was exposed, without evidence of extradural bleeding. The dura was opened and revealed a normal-appearing temporal lobe. At one spot, over an area of two millimeters in diameter, there was a bluish color of the cortex suggesting slight contusion. In the absence of any surface hemorrhage that would account for the increased intracranial pressure, puncture of the temporal lobe through the discolored area was made. At a depth of two or three centimeters a large hemorrhage was encountered. Black coagulated blood escaped along the tract of the canula following its withdrawal. Enlargement of the cortical opening permitted the extrusion of a large clot, estimated between two and three ounces. Following this the tension was reduced to normal and no fresh bleeding occurred. Wound closed. The patient made an uneventful, uninterrupted recovery, and is alive four years later. He has slight spasticity of the leg and moderately impaired use of the upper extremity.

**CASE 2.—M. W.** A miner, married, sixty-two years of age. Family and past history essentially negative. Blood pressure previous to the injury was 135/95.

On November 21, 1927, he was struck on the left side of the head by a huge rock. Scalp laceration and hematoma in the left parietal region. Was unconscious about ten hours, during which time he vomited. Following this period he was dazed and mentally confused. There was bleeding from the nose and left ear; the latter occurred intermittently for a period of ten days, at times being profuse.

Forty-two hours after the injury a left hemiparesis was noted. The patient's condition progressed slowly and on November 24 he was more restless, complained of severe generalized headache, was drowsy, yet could be aroused and answered questions fairly well. Pulse was 48, respirations 16, and temperature 99 F. The neck was moderately stiff, edema of the scalp was subsiding, and there was a slight amount of bleeding from the left ear. The left hemiparesis of the face, arm and leg, with the characteristic neurologic findings had become more complete. The pupils were equal and reacted to light and distance. The left fundus showed the disc to be within normal limits. The right fundus showed the disc to be slightly elevated and the nasal and lower margins were blurred. The general physical examination was essentially negative. Blood pressure, 172/85; urine was negative on repeated examinations; blood Wassermann was negative. X-ray examination showed a linear fracture in the left parietal bone.

For a period of one week there were no marked changes in the patient's condition, with the exception of the gradually increasing papilledema. Pulse averaged 55; respirations, 16.

December 1, 1927.—Signs of increasing intracranial pressure were more marked, bleeding from the left ear more profuse, and there was bladder and also rectal incontinence. Patient was taking fluids and food well.

December 3, 1927.—Respirations increased to 25; pulse, 100; temperature was 100.2 F.; blood pressure, 152/100, and there was a complete left hemiplegia with marked stupor.

Under local anesthesia, a right subtemporal decompression was performed. The dura appeared dark blue in color and did not pulsate. There was no evidence

of extradural bleeding. The dura was opened widely, and considerably more than an ounce of thick tarry blood escaped, the greatest accumulation being around the tip of the temporal lobe. On further examination of the field, the point of cortical rupture was found in the superior temporal convolution. It was 1.5 centimeter in diameter and was continuous, with a large intracerebral cavity 3 to 3.5 centimeters beneath the cortex. About the point of rupture the cortex was discolored from multiple small hemorrhages and subarachnoid bleeding. The cavity was gently irrigated. The wound was closed without drainage.

After the release of the intracranial pressure a definite improvement in the patient's condition was noted at once. From this time on the patient made an uneventful recovery. He was discharged from the hospital on February 9, 1928, at which time the only residual finding was slight weakness of his left lower extremity, not sufficient to cause a limp. Blood pressure was 120/80.

It seemed, undoubtedly, that the sequence of events in this case had been first the formation of a large intracerebral hemorrhage, which secondarily ruptured through the cortex and became subdural.

**CASE 3.—C. S.** A single man, American, salesman, thirty years of age. On July 27, 1927, patient's automobile turned over on its side. He received a slight blow to his head, area not known. There was no scalp abrasion, tenderness or hematoma. He was not dazed or unconscious. There was no bleeding from the external orifices.

July 28.—Patient complained of slight headache, but it was no different from others he had had. He continued with his business as usual.

July 31.—The headaches continued, and while playing golf he felt groggy and at times dizzy. On the following morning, five days after the injury, on arising, he was suddenly seized with a generalized headache, vertigo, staggered, and then became nauseated and vomited. Was put to bed and examination by a physician shortly after revealed the patient to be conscious but drowsy, restless, and complaining of severe headache. Pulse was 52; respirations, 18. Pupils were dilated, the left greater than the right. There was a left hemiparesis.

August 4.—The vomiting subsided but the fundi showed bilateral hemorrhagic papillitis. Three days later the respirations fell to 10 per minute, pulse was 56, and the stupor was more marked.

August 11.—Patient more stuporous but responded to questions. Blood pressure, 162/100; pulse was 62, full and bounding; respirations, 18; temperature, 98 F. There was slight stiffness of the neck. Pupils were unchanged and reacted sluggishly to light. Visual acuity was markedly impaired and a left homonymous hemianopsia was present. Fundi showed an advanced hemorrhagic papillitis. There was a paresis of the left sixth nerve. There was a flaccid left hemiplegia involving the face, arm and leg, there being only a slight amount of motion in the fingers of the left hand. Sensation was diminished over the entire left side. The reflexes were uniformly more active on the left side and showed pathologic reflexes. The general physical examination was negative. Blood pressure was 160/70.

X-ray examinations of the skull were negative for fracture. The urine showed the faintest possible trace of albumin on five separate examinations. Blood Wassermann was negative. Blood count: red blood cells, 5,000,000; hemoglobin, 75 per cent; white blood cells, 20,550; normal differential.

There was no marked change in the patient's condition until August 14. At this time, eighteen days after the injury the respirations fell to 7 per minute; pulse was 59 and irregular; and the patient was deeply stuporous and cyanotic. Considering the possibility of a chronic subdural hematoma a large right temporoparietal osteoplastic flap was reflected under local anesthesia. The dura was extremely tense, of normal



color, and did not pulsate. The brain appeared normal through the dura and there was no evidence of subdural bleeding. A small opening was then made in the dura in the region of the supramarginal convolution. A ventricular needle was passed into the brain substance and at a depth of 3 to 3.5 centimeters. A large hemorrhage was encountered, and thick tarry blood escaped through the needle. Upon the release of the pressure the brain pulsated. A second puncture was then made in the region of the superior portion of the ascending parietal convolution with another ventricular needle, its direction being such that its point would be in the same area as that of the point of the first needle. The cavity was gently irrigated with Ringer's solution, a through and through irrigation being made possible with the two needles. A small silver drain was left in place at the site of the puncture. A rubber dam drain was used from the dura to the outside. Before leaving the table the patient was less stuporous, and by the time he had returned to his room he was able to perform gross movements with his upper extremity and could raise his leg from the bed.

From this date there was a gradual improvement in the patient's condition. In this, as in the other cases, a long period of bed rest was deemed advisable.

At the time of the patient's discharge from the hospital, four months after the operation, the strength of the extremities was equal. The hemianopsia required the longest period of time to clear. The visual acuity was within normal limits at the time of discharge, while gross objects could be distinguished in the left visual fields. At this time, nine months after the discharge from the hospital, the patient can read ordinary newspaper print and there is only a relative hemianopsia present.

#### COMMENT

Late central brain bleeding of the type presented in the above cases is not to be considered as a rare complication following head injuries. In elderly people the relation of trauma to this type of bleeding is at times difficult to decide, but when the onset of symptoms occurs a few days after the trauma, it should be considered as the direct cause rather than as the exciting factor. In the past the greater percentage of hemorrhages occurring in elderly people after trauma has been considered as being spontaneous in origin. In compensable accidents we feel that injustice may readily be done, in not more closely connecting late cerebral accidents with previous injury. The late rupture of vessels after injury is well established in the production of traumatic arteriovenous aneurysms. Considering all the cases of this type, the average length of time between injury and the onset of the bruit is twenty-one days. In these cases the mechanism of the pathologic changes occurring in the carotid artery, which finally leads to its rupture, may be of the same nature as that taking place in other cerebral vessels following trauma.

In considering the third case, a young man, in perfect physical condition, showing no evidence of vascular changes, yet having a latent period of several days between the trauma and hemorrhage, the trauma undoubtedly was the etiologic factor. In elderly people whose blood vessels are more or less changed and less resistant, minor injuries would be sufficient to cause similar lesions. In this case, as represented by case one and case two, trauma is more likely to be the etiologic factor.

From the industrial accident standpoint such cases of large solitary intracerebral hemorrhages

have usually been regarded as being of spontaneous origin, especially when occurring in elderly working individuals; and the trauma, as the etiologic factor, has been considered of minor importance.

Given the history of head injury, slight or severe, in elderly individuals showing some possible vascular changes, followed by a short latent period in which the head symptoms may or may not be present, in which an intracerebral hemorrhage is found—it must be concluded that the trauma is in direct relation to the hemorrhage. In young individuals, having a long or short latent period, trauma must likewise be considered.

384 Post Street.

#### DISCUSSION

MILTON B. LENNON, M.D. (384 Post Street, San Francisco).—The question of late apoplexy following head trauma is an interesting one, both from the diagnostic and medico-legal standpoints. That such cases occur is a well-established fact and their diagnosis does not present many attendant difficulties. Whether we can fully or even partially subscribe to the underlying pathology as described by Bollinger and Duret, has long been a matter of controversy. Langerhaus and others have failed to find the softening which Bollinger described. It will be recalled that Bollinger predicated a primary softening, with a secondary hemorrhage due to degeneration in the vessel walls. While this chiefly occurred in the vicinity of the aqueduct and about the third and fourth ventricles, it may occur anywhere within the brain.

Theory aside, the splendid results recorded in the paper under discussion show that careful observation of increasing head symptoms following trauma may lead to an exact localization of the hemorrhage and that this may be evacuated by the brilliant neurosurgeons of the present day.

We must congratulate Doctors Naffziger and Jones for achieving so much for the three patients whose histories have been presented. Ordinarily such patients, if they do not die, are subject to a lifelong incapacity and invalidism.



I. LEON MEYERS, M.D. (817 South Hill Street, Los Angeles).—Doctors Naffziger and Jones are dealing here with a subject of much practical importance. The physician treating a case of head injury should bear in mind the possibility that a hemorrhage, in the substance of the brain or outside of it, may occur a considerable time after the injury, after an interval which is practically free from symptoms. And what is of particular interest is that such hemorrhages may occur after an injury which was not at all severe, and one which did not render the patient unconscious. I have not had any personal experience with a late hemorrhage within the cerebral substance such as occurred in the authors' Case No. 3. I have had, however, quite a few cases of late hemorrhages in the subdural space, cases in which the effusion of blood took place slowly, going hand in hand with the formation of a fibrous capsule, and which did not give rise to symptoms until as late as eight weeks following the injury. I reported a case like this—demonstrating at the same time the specimen—at a meeting of the general staff of the Los Angeles General Hospital, in October, 1923. I have since that time had quite a few similar cases. A particularly interesting example of this type came under my observation recently. The patient, a man aged forty-six, a waiter at the Los Angeles Biltmore Hotel, was taking horses to a riding academy when he was kicked by a horse over the left upper jaw. He was dazed for a while, but was not unconscious, and after a little while resumed his job of delivering the horses to the academy. He went home, applied iodine to his bruised face and paid no



further attention to his injury. The next day he resumed his work at the hotel as waiter, work which requires considerable alertness and precision of movement. On June 5, two months later, he, for the first time since the injury experienced a severe headache and drowsiness. Two days later his vision became blurred. His symptoms became steadily worse, and he developed choked discs of about 6 D. elevation, a paralysis of the left sixth, and began to have epileptiform fits. An operation performed on him about two months later, *i. e.*, four months after the injury, disclosed an immense, firmly encapsuled, subdural hematoma which covered the occipital, and part of the parietal lobe on the right side, and the entire occipital lobe on the left side.

I have also had quite a few cases of late hemorrhages in the substance of the spinal cord. In one case, a man aged fifty-five, strained his back while pushing a car in a garage in which he was employed. He gave up his work for the rest of the afternoon. He spent the following day in the park, and about 4 p. m. he suddenly developed a paralysis of both legs, loss of sphincter control, and sensory disturbances which were hematomyelic in character—he had a complete loss of sensation of pain and temperature, with the retention of the sense of touch.

These cases should emphasize to us the seriousness of an injury to the head or spine, even if this does not incapacitate the patient immediately. It is very possible that these late hemorrhages might be obviated by enforcing upon the patient a prolonged rest, and enjoining him from resuming his work too early.

✱

CARL W. RAND, M. D. (523 West Sixth Street, Los Angeles).—In discussing this rather unusual subject the authors did not mention the rôle that syphilitic endarteritis may play. It is common for syphilitics to have apoplectic strokes in early life without the incident of injury. When a minor injury is introduced into the picture one has a difficult problem trying to evaluate what part the injury may have played in the case, and what part is due to arterial disease.

A case of this nature has recently come to my attention. On June 11, 1928, a carpenter, fifty-five years of age, while straightening up from a stooping position bumped his head on an overhanging beam. He was not knocked unconscious, continued with his work for several hours, went to bed that night with a headache, failed to get up the next morning, when he was found to be in coma. A spinal puncture showed a bloody spinal fluid. X-ray of the skull was negative for fracture. He regained consciousness in a short time, but had a jargonaphasia and slight weakness of the right side of the face. A second lumbar puncture on June 15 showed a yellowish fluid which contained 300 cells, a positive globulin and a 4+ Wassermann reaction. The blood Wassermann reaction was negative. He was observed for some days, and on June 28, 1928, a left-sided decompression was done. No subdural hemorrhage was present. The brain was moderately tight and sweaty, but no point of softening or bluish area was seen. The temporal lobe was not punctured. Following this he began to improve, gradually getting up and about. His speech cleared up to a large extent, when suddenly on the morning of July 19, 1928, he had a severe headache, went into convulsions and died within three hours. A coroner's autopsy was done and a large currant-jelly clot was found in the substance of the left temporal lobe. This clot had ruptured into the left ventricle, which was filled with blood. There was much softening of the cerebral substance. The remains of an old subcortical hemorrhage undergoing fibrous changes were found. The arteries of the brain showed advanced disease of the walls, in places being calcareous and plaqued, in other places very thin. The second hemorrhage of July 19, 1928, was undoubtedly spontaneous. The first hemorrhage of June 11, 1928, was probably identical with the second, but followed a few hours after a slight injury. Such a case might

come under the heading of late traumatic apoplexy.

On two occasions I have evacuated clots in the region of the internal capsule by doing a decompression and needling the temporal lobe. In both instances the clots wormed their way out along the tract of the cannula. In relatively young individuals who have had apoplectic strokes it is not unreasonable at times to advise attempting removal of the clot. If this is possible, the saving of time and disability to the individual is reduced. The problem is essentially the same in cases of spontaneous, as in traumatic apoplexy.

## DUODENITIS\*

By GUNTHER W. NAGEL, M. D.

Rochester, Minnesota

DUODENITIS is a surgical and pathological entity characterized by circumscribed or diffuse inflammation of the first portion of the duodenum. The term "duodenitis" is more or less arbitrarily limited to a type of chronic inflammation of the duodenum without the formation of calloused ulcers, the clinical picture of which is practically identical with that of chronic duodenal ulcer. The cause of the disease is unknown. The pathologic findings are distinctive. The association between duodenitis and chronic ulcer of the duodenum is probably close, but the exact relationship of the two lesions is not known.

The inflammatory changes in the tissues surrounding duodenal ulcer are well known. Hyperemia, edema, cellular infiltration, exudate, the formation of fibrous and scar tissue are inflammatory reactions on the part of the tissues and an evidence of nature's attempt to heal the lesion. There can be little doubt that inflammatory changes follow the formation of ulcer. Inflammation as a primary lesion and possible cause of duodenal ulcer has been considered, but it is only in recent years that it has received the attention it deserves.

## PEPTIC ULCER AND DUODENITIS

For a number of years Judd<sup>1 2 3</sup> has been calling attention to the occurrence of two distinct pathologic lesions in the duodenum, either of which may be found when there is a characteristic history of chronic peptic ulcer. The first is the true ulcer which is recognized by congestion and stippling of the serosal surface with more or less formation of scar tissue and adhesions and deformity of the duodenum. The wall of the bowel is always indurated in this type, and a tumor may be formed as a result of the defensive reaction of the surrounding tissue, if the ulcer has slowly perforated the bowel. A second type of lesion is one which Judd has called duodenitis, in which there is congestion and stippling of the serosa, but little or no induration. Palpation of the duodenum is negative, and when the bowel is opened no lesion of the mucosa can be found, or at most only one or more superficial small mucosal abrasions. These might be considered healed ulcers were it not that the congestion, edema and stippling and the presence of symp-

\* Read before the General Surgery Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



toms constitute evidence of some pathologic process going on in the intestinal wall. Microscopic examination reveals little or no abrasion of the mucosa, but the submucosa and at times the muscle layers are infiltrated with lymphocytes. Often there is a tendency to circular constriction of the bowel in these cases, but it is difficult to determine whether this is due to spasm or true narrowing. Clinically there is little, if any, difference between the two types. The roentgenogram shows spasmodic deformity in both lesions. That duodenitis is not a stage from which true ulceration invariably develops is shown by the fact that the average duration of symptoms in the two lesions is about the same. The terminology has no bearing on the clinical diagnosis or treatment.

The treatment of duodenal ulcers by resection of the first portion of the duodenum and pyloric part of the stomach practiced in recent years by some surgeons has led to interesting pathologic findings. Konjetzny,<sup>4 5 6</sup> Orator,<sup>7</sup> Puhl,<sup>8</sup> and others find that in nearly all cases of gastric and duodenal ulcer there is more or less extensive gastritis and duodenitis. Grossly wart-like papillary outgrowths of epithelium are seen together with thinned-out atrophic areas. All stages of superficial ulceration are seen varying from tiny abrasions to fissures and ulcers of appreciable size. These lesions are covered with fibrinous exudate. Microscopically, inflammatory changes are seen in the mucosa, which is edematous and infiltrated with polymorphonuclear leukocytes and lymphocytes. In areas where the epithelium is denuded, exudate streams from the mucosa like smoke from a funnel; it is largely fibrinous and rich in cells, chiefly polymorphonuclear leukocytes, but also lymphocytes and plasma cells. Areas of acute polymorphonuclear infiltration vary with more chronic areas characterized by a predominance of lymphocytic cells. The epithelium is denuded in places, and in other regions it has regenerated. Often the lower layers of the mucosa are eroded, although there is no epithelial defect. Except where a chronic ulcer appears, the process is limited as a rule to the mucosa, although the submucosa in some instances shares in the inflammatory reaction.

#### DUODENITIS AS A PRIMARY LESION

That duodenitis is a primary process is borne out by the long history. A relationship exists, however, between duodenitis and chronic duodenal ulcer. According to Konjetzny and Puhl, the finding in a single resected specimen of all stages from simple erosion to chronic ulceration, gives the impression that here are represented all the steps in the pathogenesis of chronic ulcer. In several patients giving a long history of ulcer only duodenitis and gastritis were found. This discounts the claim that gastritis and duodenitis are necessarily secondary to chronic ulcer. Puhl believes that gastritis and duodenitis is a disease primary to the formation of chronic ulcer. Exogenous irritative factors and constitutional states play an important part in its causation. Puhl says the disease is common and most often subsides, but in the presence of certain conditions, namely, the

mechanical functional factors of Aschoff,<sup>9 10 11</sup> chronic ulcer develops. Hauser,<sup>12 13</sup> Orator,<sup>14</sup> and others deny the logic of the inflammatory theory of the origin of ulcer.

Whatever the relationship may be between true duodenal ulcer and duodenitis there can be no question of the existence of duodenitis as a distinct entity. Duodenitis can be diagnosed with certainty only upon microscopic examination of the diseased tissue. In studying specimens obtained by excising what are thought to be duodenal ulcers one is surprised at the frequency with which duodenitis appears as the only lesion. Patients with only duodenitis frequently give a long history typical of ulcer, with positive x-ray findings, an ulcer niche, however, never being present. Hemorrhage is even more frequent than in chronic ulcer. Duodenitis, like other tissue reactions, varies in degree. The simplest form is seen at operation as a slight area of hyperemia and faint stippling when the serosa is rubbed, the area involved usually being a circular patch 2 or 3 centimeters in diameter on the anterior surface of the duodenum, just below the pylorus. The affected area may be edematous and the serosal surface slightly dulled. In this simple form there is no deformity of the duodenum, but there may be slight pylorospasm. In the more advanced forms the area is red, hyperemic and edematous, and the stippling is marked. In a still later stage the duodenum is uniformly narrowed for a distance of several centimeters, and in extreme cases the circumference of the bowel is not more than 2 or 3 centimeters. In advanced cases there may be deformity of the duodenum, but no stellate scars, irregular contractions or punched-out lesions are seen in duodenitis. There may be adhesions of the omentum and gall bladder or other organs to the lesion, but these are usually slight and easily separated. Dense adhesions and tumor such as are often observed in cases of chronic perforating ulcer are not found. When the area is excised the mucosa is usually found intact, although in some instances there may be single or multiple small superficial abrasions. The wall of the bowel is generally somewhat thicker than normal. Duodenitis is not necessarily progressive in all cases. In some cases the inflammation is mild at operation in spite of a long duration of symptoms. In other cases in which the history is comparatively short the pathologic changes are extensive. In each case also there are undoubtedly periods of exacerbation and remission of the disease probably coincident with the occurrence of symptoms and freedom from them. Indeed the periodicity of ulcer symptoms can be much better explained on the basis of duodenitis than of chronic ulcer. The frequency of hemorrhage in cases of duodenitis is also readily explained by the pathologic picture. Careful search in cases of duodenitis fails to show any evidence of old or more recent chronic ulceration.

In a microscopic section of the affected area are seen all the changes of subacute and chronic inflammatory processes. The epithelium is generally intact, but may be denuded in a few small areas,

in which case epithelial cells are seen in various stages of degeneration, and the surface is covered with fibrinous exudate rich in lymphocytes, plasma cells and occasional eosinophils. In areas in which inflammation is more acute, a fair sprinkling of polymorphonuclear leukocytes is found. In most instances the mucosa and submucosa are affected, and occasionally the cellular infiltration extends through the muscle layers to the serosa. There may be a perceptible increase in fibrous tissue, especially in the submucosa. Also the vessels of the submucosa show some engorgement, but this is most marked in the serosa which is generally congested and thickened.

#### DUODENITIS AS A COMPLICATION

Duodenitis is not only found as a primary lesion but is even more frequently found associated with chronic duodenal ulcer. Just what relationship the two lesions bear to each other is not clear. That inflammation plays an important part in the ulcer problem is further shown by the fact that in gastric ulcer, and occasionally in duodenal ulcer, one is often able to demonstrate a more or less widespread gastritis. Gastritis also may be found without chronic ulcer in patients with a long typical history of ulcer. Also in some cases of supposed jejunal ulcer no true ulcer can be found though a serious pathological lesion is obviously present. In these cases the jejunum is thick, distended, friable, red and edematous, and the mucosa covered with tiny hemorrhagic areas.

#### PATHOLOGIC FINDINGS

The pathologic findings in duodenitis call attention to the work of Rosenow,<sup>15 16 17</sup> as the lesions closely resemble those produced by him in animals by injecting specific strains of streptococci. Rosenow has recovered these strains from the tonsils and infected teeth in patients with ulcer of the stomach or duodenum and also from inflammatory duodenal tissue removed at operation. Puhl was able to demonstrate organisms in tissues showing gastritis and duodenitis, but was unable to culture them. Recently Nickel and Huffman<sup>18</sup> were able to recover a green-producing streptococcus from tissue removed at operation in ten out of eleven patients with ulcer. Four of the ulcers were gastric, four duodenal, and three were postoperative jejunal ulcers. They were able to reproduce typical inflammatory lesions and ulcers in the gastric and duodenal mucosa of rabbits injected with these cultures. It may be that in some cases of duodenitis and ulcer, infection plays an active part.

As duodenitis can only be diagnosed with certainty by excising the lesions, the results of treatment can only be determined with accuracy following this procedure. Excision by Judd's<sup>3</sup> method results in cure or marked improvement of symptoms in a high per cent of cases.

The ulcer problem has not been solved, and in the present confused state of our knowledge adding duodenitis as a distinct entity to the picture does not seem to clear matters any. It is important, however, to recognize that a patient may

have a history of many years' standing typical of duodenal ulcer, with x-ray findings of deformity, and yet not have a true chronic ulcer.

Mayo Clinic.

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How Important Is the "Common Cold"?—The New Haven Department of Health reports that over 40,000 school days were lost last year by a total of approximately 7000 children who were out for periods of three days or more because they had colds.—*U. S. Department of Labor.*



## EUROPEAN UROLOGY\*

By FRANK HINMAN, M. D.

San Francisco

IN a rather hurried manner the leading urological clinics of Vienna, Berlin, Paris, and London have just been visited in the order mentioned.

## VIENNA

There was less of urological interest in Vienna than any place visited. Blum at Sophienspital is probably the most active urologist there, but had little to show me during the week's visit other than a nephrectomy, which was performed according to the general European rule after resection of the twelfth rib. Mauritius, at the Poliklinik, has a small but interesting diagnostic service, but was doing no surgery. He has adopted the custom of giving all his cystoscopic patients an enema beforehand, employing antipyrin, 3 grains; tincture of opium, 25 drops; and water enough to make 50 cc. His experience with carcinoma has been quite discouraging, and for several years he has left advanced carcinoma of the bladder and prostate alone except for a simple suprapubic drain in cases with urinary obstruction or excessive bladder disturbance. At Hochenegg's Clinic, Die allgemeinen Krankenhaus, it was a pleasure to meet Felix Fuchs and see a number of his specimens demonstrating pyelovenous backflow in the human kidney. He is quite enthusiastic over the probable clinical significance and importance of the phenomenon of pyelovenous backflow, believing that it is responsible in many cases for obscure conditions of pain and the cause of intermittent types of infection. The cause of these two conditions, however, is not always a typical pyelovenous backflow but often, he thinks, a subcapsular effusion from the pelvic vessels or by way of lymphatics from the pelvis, but in every case associated with temporary or intermittent types of obstruction. They are also using in the urological service at Hochenegg's Clinic what they call a nitri test for *Bacillus coli* in the urine. A few drops of naphthaline alpha 10 per cent added to the urine gives a pink reaction if *Bacillus coli* are present.

## BERLIN

In Berlin there is a great deal to see for one interested in urology. Von Lichtenberg, Joseph, Kaspar, Israel Jr., and Ringlieb, all have interesting services. Probably the largest urological service in the world is that of von Lichtenberg at St. Hedwig Krankenhaus. At the time of my visit he had in the hospital about two hundred urological patients—men, women, and children. In addition to this enormous service, of which he does most of the surgery himself, he is actively interested in the German urological publications, editing the *Zeitschrift* and, with C. Posner, the

*Jahresbericht Über die Gesamte Urologie und ihre Grenzgebiete*, in which is collected each year the complete bibliography of the world on all urological subjects, the fifth volume of which has just appeared. The only drawback to an otherwise most useful reference book is the fact that each volume is about two years late in appearing, this fifth volume containing the literature for the year 1925. Von Lichtenberg has some interesting methods in his service, a few of which may be mentioned. He performs an open operation for ureteral stricture and either resects the stricture, forming an end-to-end anastomosis afterward, or splits it widely open and places a Y-tube drain at the point of incision. He also frequently resects urethral strictures, which is not so unusual for the posterior urethra, but he treats his anterior urethral strictures in the same manner, widely resecting them, a method that is condemned by American urologists. There was one case still on his wards that had been there for one and one-half years in whom an anterior urethral stricture had been resected, and the urinary fistula still persisted. His methods of treating pyelitis and pyelonephritis are somewhat different from ours. A great many of these cases with this diagnosis were on the wards, particularly the women's wards. Forty per cent solution of urotropin in 4 cc. doses is given intravenously every two to three days, the drug also being given three times daily by mouth. Should the infection and fever persist, either a pyelostomy or nephrostomy with direct lavage is instituted. But he practically never treats his cases by ureteral catheterization and lavage and performs no ureteral dilatations per catheter. In case of ureteral stone papaverin in 10 mg. rectal suppositories is given and fluids forced. Should the stone fail to pass after a reasonable interval it is removed surgically. He is extremely conservative in his treatment of genital tuberculosis. Although he believes that the primary focus is usually in the seminal vesicle, he never performs vesiculectomy and only operates on the epididymis when abscess or fistula develops. For enlarged prostate he prefers the perineal route, although he uses both, but his perineal method is totally different from that developed by Young and his associates. He follows very much the same custom as the men in Vienna with regard to cancer of the prostate and bladder, resecting bladder tumors when possible and treating all other cases by simple suprapubic drain.

Eugen Joseph has the urological service at the University Clinic but no operative service. Von Lichtenberg is the only urologist in Berlin with a surgical service, all of the surgery at the other clinics being performed by the general surgeons. Joseph has a very active private service, however, at the Sanatorium Hygeia. He has just recently published "Die Harnorgane im Röntgenbild," giving his personal experience and methods, particularly emphasizing the diagnostic value of displacement of the kidney or ureteral shadows in case of renal tumor, the only lesion of the kidney that gives such types of displacement. Just at present he is quite enthusiastic over a new method developed at his clinic which he has called "dy-

\* Read before the Urological Section of the San Francisco County Medical Society, May 22, 1928.



namoscopy," which seems to be a refinement of meatoscopy, the manner and period of emptying at the ureteral meatus of a dye that has been injected into the renal pelvis, being watched through the cystoscope. He considers that the application of dynamoscopy is of particular value after renal or ureteral stone.

The German literature is just at present enthusiastic over what promises to be an entirely new and somewhat revolutionary method of anesthesia. This new anesthetic has the trade name of "Avertin" and as yet has not been placed on the market. The manufacturers have given it out for trial and experimental use to a number of the important surgical clinics in Germany and in the *Münchener Medizinische Wochenschrift* of April 6, 1928, Straub of the Pharmacological Institute of the University of München, Hornung of the Women's Clinic at the University of Berlin, Flörcken and Mues of Frankfurt, Otto Roith of Baden-Baden, Dax and Weigand of München and Kartal of Zürich have published their experiences. In the *Medizinische Klinik* of April 5, 1928, are also published the personal experiences with "Avertin" of Nordmann of Berlin, with discussions by Amersbach of Prag, Polano of München, Vorschütz of Hamburg and Roith of Baden-Baden. Reading these reports one gets the impression that this anesthetic institutes an entirely new field in anesthesia. Its greatest recommendation is that it takes away for the patient the dread and fear of an operation as well as that of taking an anesthetic for it. The drug is given in 200 cc. of water at an average of  $1\frac{1}{2}$  mg. per kg. weight (by means of a rectal tube which has a bulb so as to prevent any loss of the fluid) to the patient in bed, and is followed in fifteen to twenty minutes by a perfectly natural sleep, giving complete anesthesia with relaxation lasting for two to two and one-half hours, from which the patient awakes usually in bed after his operation without any after-effects of nausea or vomiting and without any of the acute postoperative pain, as the anesthetic effect lasts for several hours after the patient awakes. Nordmann has used it in over nine hundred surgical cases and states that he knows of no fatality following its use except for two cases mentioned by Killian, both of cancer of the pancreas. In about 30 per cent of the cases in which it has been used, however, it has had to be supplemented with general anesthetic, as the relaxation and anesthesia are complete in only about 70 per cent of the cases.

#### PARIS

Paris of course is a great urological center and the work of Legueu, Marion, Papin, Chevassu, Maisonet, Heitz-Boyer, Luys and several others is always interesting. Legueu was quite enthusiastic over two new things in his clinic, one a new transvesical operation for vesico-vaginal fistula and the other his so-called method of pyeloscopy. In collaboration with Fey and his radiologist at Necker, Truchot, he published last year a monograph "La Pyéloscopie." I had the privilege of seeing Truchot pyeloscope ten patients, demonstrating beautifully the physiological action of the

renal calices and pelvis in relation to the movements of the ureter. Fluoroscopic studies of the injected pelvis at the Clinique Urologique de Necker seem to demonstrate a rather independent physiologic activity of the pelvis and ureter. They lay particular stress upon the ureteral "bulb" which appears intermittently in a normal pyeloscope and, even though the method should not attain universal and practical importance, it is of great value in enabling the movements of the pelvis and ureter to be studied just as previously those of the stomach and pylorus have been.

It was also interesting to see the reaction at this clinic to the treatment of genital tuberculosis. The only surgery being performed is an occasional epididymectomy, most cases receiving no surgical treatment but being treated by ultra-violet light, for which a special room in the clinic has been provided.

Papin at Saint Joseph's Hospital is best known by his more recent advocacy of denervation for nephralgia. He has just completed a two-volume textbook on renal surgery and has almost ready for publication another two-volume book on renal tuberculosis. He is also collaborating with one of our American urologists in the publication of a two-volume book on renal anomalies.

#### LONDON

In London one can see very good urology performed by such leaders as Sir John Thompson-Walker, Swift Joly, Hugh Lett, Frank Kidd, Sidney McDonald, Winsbury White, etc. Thompson-Walker is the unquestioned leader of this group, being the leading suprapubic prostatectomist of England, and he performs a very finished and beautiful operation. He advocates prostatectomy early, considering two ounces of residual as an indication for it. He uses spinal anesthesia in all his cases, usually supplementing it with ether. The bladder is filled with water per urethral catheter and a long suprapubic incision made so that the whole hand can easily enter the bladder for the enucleation of the gland. With the patient in the Trendelenburg position and his special bladder retractor and the spinal anesthesia, an unusually good exposure of the bladder neck is obtained. The enlargement is enucleated en masse and then the fossa is cleaned, with scissors, of all tags or remaining nodules and the neck is sewed up with a running circular suture which seems to control hemorrhage quite satisfactorily. He places a urethral catheter as well as a suprapubic drain and rarely packs the fossa and uses no hemostatic bag. His assistant, Doctor Andrews, who has been with him a number of years, has recently analyzed his statistics and states for all cases he has a mortality of only 8 per cent and for the last two hundred cases 4.4 per cent.

Swift Joly at Saint Peter's follows Thompson-Walker's technique, but places the hemostatic bag in place of the urethral catheter. He also has a rather interesting method for urethral stricture, performing internal urethrotomy for deep strictures followed by dilatation, using a Maisonneuve urethrotome, the grooved guide of which is held by an assistant so that it firmly presses against



the roof of the urethra. He states that in none of his cases has he ever had any severe hemorrhage, but of course these cases must be followed up by prolonged dilatation just as in the method of gradual dilatation with filiforms and followers.

The London urologists are at present all interested in technical methods and development of new instruments, and have an excellent assistant in the head of the Genito-Urinary Manufacturing Company, almost all of the men having their own particular pet instruments carrying their own names, the diathermy punch of Kenneth Walker, and the diathermy cystoscope of Kidd deserving particular mention.

384 Post Street.

## HUMAN SEXUAL STERILIZATION\*

A CONTRIBUTION TO THE STUDY OF THE PROBLEM

By SUREN H. BABINGTON, M. D.  
*Berkeley*

THE sterilization of the mentally diseased makes it possible to curtail their ever-increasing number. Considering both scientific and humanitarian points of view, sterilization is one of the most valuable means for not only improving the human race and protecting its welfare, but also decreasing the number of unfortunates to be born to suffer intensely all their lives for faults not their own.

Of course, every physician at one time or another has to resort to some form of sterilization in cases where pregnancy would be dangerous to the life of the woman on account of pulmonary tuberculosis, other constitutional diseases or defects, or of repeated cesarian section necessitated by one cause or another.

### SOME CRUDE METHODS OF STERILIZATION

A crude way to sterilize is to deprive the male of his testicles. We do not know how old this method is, but there is evidence of its having been practiced in the time of Plato, as a form of punishment of criminals, a purpose entirely different from those of modern times.

As a result of this castration, the man loses all sexual desire, becoming incapable of sexual intercourse, while his masculine characteristics are modified to a feminine pattern. The hair on his face tends to disappear, and his breasts develop glandular tissue, provided the castration be performed either before or in his middle age.

In the case of women, a crude method of sterilization is the removal of the uterus or of the ovaries. In the latter event, of course, the effect upon the subject is analogous to that upon the male upon removal of testicles: if the operation is performed before, or in middle age, the voice becomes masculine, there is a marked increase of hair upon the face, the breasts atrophy, and menstruation ceases. Removal of the uterus is a serious and an unnecessary operation for sterilization. It is justified only when the organ itself

is diseased. Besides, we cannot wholly neglect the fact that the uterus has an internal secretory function, however small.

### NEWER METHODS

The next step in the history of human sterilization was an effort to avoid mutilation and the undesirable results of removal of sex organs as above mentioned.

The x-ray and radium have been tried with this end in view. Although with their use there is no mutilation, the final results produced by them are similar to and as obnoxious as those of castration. The x-ray and radium destroy the sexual endocrines, thus depriving the subject of sexual desire and producing early menopausal changes. Of course at the time of, or near the menopause there would be no objection to the use of x-ray or radium, but at this period of life there is no need for sterilization.

In recent years some experimental work has been done in the sterilization of female rats and rabbits with some encouraging results, by the subcutaneous injection of spermatozoa or testes extract.

Extracts of ovaries have also been used, large doses of which inhibit the development of follicles in female rabbits, and the latter do not admit the male.

Perhaps some day we may be able to render an individual permanently or for definite periods of time, immune to fertilization by immunization, just as we protect persons against smallpox.

### SIMPLE AND SAFE SURGICAL METHODS

The best methods for the sterilization of human beings in use today are surgical, but not those involving the removal of any generative organs nor producing changes that alter the subject's sexual life and general physical characteristics.

As a result of the safe and simple surgical methods now in vogue, patients are merely unable thereafter to fertilize or to become fertile.

### STERILIZATION LEGALIZED—STATISTICS FOR CALIFORNIA

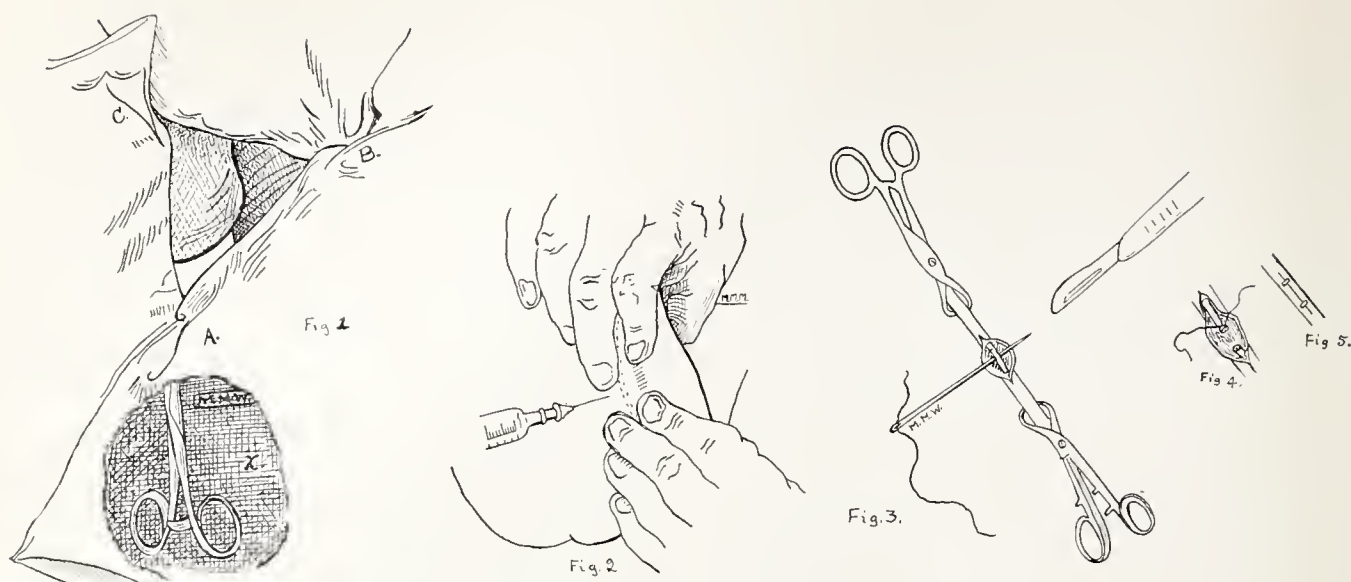
These later methods of sterilization have been legally adopted in some twenty-three states in this country, with certain limitations, not only as an eugenical, but also as a therapeutic measure to be employed in the treatment of patients of state institutions for the mentally deficient.

The California Sterilization Law was adopted in 1909. The total number of operations performed to May, 1927, was somewhat in excess of five thousand, which is four times the number performed in all the rest of the world, as far as we know, for eugenical reasons in state or governmental institutions.

### MORE TO BE DONE

We hope that the time will come when we shall sterilize also those mental defectives who are not sent to state hospitals, because the public thinks of them as "harmless," and classifies them as "just bums," "eccentrics," or "queer people." From the point of view of the psychiatrist, they, too, are "insane," and are a menace to race betterment.

\*This paper received honorable mention in the Research Prize competition of the California Medical Association, April 30, 1928.



#### Male Sterilization:

Fig. 1.—Sterile towels are used to limit the exposed operating area. These three towels, arranged to leave a triangular area exposed, are fastened at their intersections with towel clamps placed beneath so as to avoid interference with the operator.

Fig. 2.—The assistant grasps the vas deferens. In some patients it is very thin but can be easily identified, as it feels like a hard and slippery cord. By manipulation it is brought very close to the surface and held there so that it can be seen bulging through the skin. The "trick" is to get hold of the vas in such a way that it becomes engaged between the first and second fingers of each hand, the thumbs pressing from below against the vas to prevent it from slipping away. The distance between the points grasped should not be more than one inch and a half.

Fig. 3.—An incision of about half an inch in length is made longitudinally in the coverings of and down to the vas, bringing into view the white and shiny vas. The vas is then ligated with a catgut which has been passed under the vas by the aid of a very large straight needle.

Fig. 4.—Next, a small section is cut from the vas below the ligature. In this way the upper portion of the vas is sealed off, while that of the lower is left patent, no ligature being used there.

Fig. 5.—The incision is closed with two Mitchell clips.

because they go on propagating their own kind in large numbers. Unfortunately for society they are the people who usually have the largest families. This class includes a great number of psychopathic individuals, such as ne'er-do-wells, idlers, hoboes, prostitutes, recidivists, addicts, alcoholics, and a class who work but are never satisfied.

Some organizations in America, such as the National Eugenics Society, and the Carnegie Institute, are doing a great deal to enlighten the public along these lines.

Now, in California, we have a new organization established by E. S. Gosney, a Pasadena philanthropist, for the study of the problem. The technical side of the undertaking is in the hands of Paul Popenoe, a biologist and eugenicist.

#### I. A METHOD OF MALE STERILIZATION

At the time I developed my own technique in this field, my problem was the sterilization of patients in a state institution for the insane.\*

I prefer local to general anesthesia, because the need for postoperative care is thereby almost entirely eliminated, patients being cared for as if no operation had been performed.

The belief had been that mental patients are likely to give trouble if not put under general anesthesia, but as a rule I have never had any trouble performing the operation under local. As a matter of fact the patients have shown a

spirit of coöperation, and have carried on conversation while being operated upon.

#### TECHNIQUE

1. The night before the operation, the skin area, including the pubic region, scrotum, inner upper third of thighs, the urogenital triangle of the perineum, is well shaved, scrubbed, and disinfected and a sterile dressing applied.

2. The morning of the operation, the patient is given morphin grain 1/4 and atropin grain 1/150.

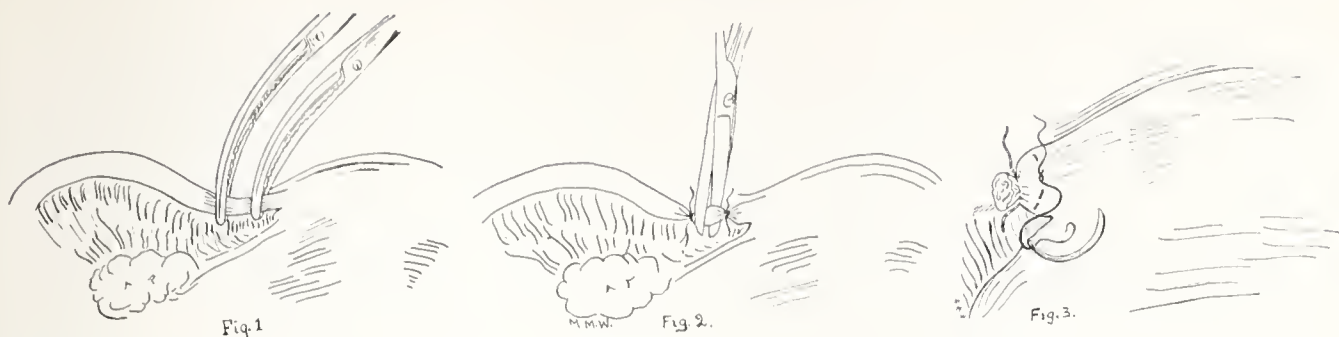
3. On the operating table the penis is turned over the mons veneris and held there with a piece of sterile adhesive tape.

4. The skin area is disinfected, the patient draped. Sterile towels are used to limit the exposed operating area. These three towels, arranged to leave a triangular area exposed, are fastened at their intersections with towel clamps placed beneath so as to avoid interference with the operator. (See Fig. 1.)

5. The assistant grasps the vas deferens. In some patients it is very thin, but can be easily identified, as it feels like a hard and slippery cord. By manipulation it is brought very close to the surface and held there so that it can be seen bulging through the skin. The "trick" is to get hold of the vas in such a way that it becomes engaged between the first and second fingers of each hand, the thumbs pressing from below against the vas to prevent it from slipping away.

\* Mendocino State Hospital, Talmage, Cal., Donald R. Smith, M. D., Superintendent.





#### Female Sterilization:

Fig. 1.—The salpinx is crushed in two places with a pair of hemostats, one-quarter of an inch apart, as near the cornua of the uterus as possible.

Fig. 2.—A ligature of chromic catgut is applied to each of the crushed points. The salpinx is severed between the ligatures.

Fig. 3.—A purse-string suture is applied the same as for an appendix around the stump at cornua.

The distance between the points grasped should be about one inch. (See Fig. 2.)

6. The operator infiltrates the tissues immediately over the vas with about one cc. of 1/4 per cent novocain containing about five drops adrenalin to each cc. (See Fig. 2.)

7. The operator applies two skin clamps at a distance of about an inch apart, encompassing the vas with its overlying skin. Then, of course, the assistant releases the skin, and holds the clamps. (See Fig. 3.)

8. An incision of about half an inch in length is made longitudinally in the coverings of and down to the vas, bringing into view the white and shiny vas.

9. The vas is then ligated with a catgut which has been passed under the vas by the aid of an extra large straight needle. (See Fig. 3.)

10. Next, a small section is cut from the vas below the ligature. In this way the upper portion of the vas is sealed off, while that of the lower is left patent, no ligature being used there. (See Fig. 4.) The beneficial effect upon the mentally sick or so-called sexual neurosis patients is obtained very likely from the absorption of the spermatic secretions which are thus evacuated into the tunica vaginalis.

11. The incision is closed with two Mitchell clips. (See Fig. 5.)

The same procedure as described above is carried out on the other vas. The whole operation should not take more than a few minutes.

I have found this technique superior to any other method of vasectomy, as no dissection is necessary. By this method, the vas deferens, being held right close under the skin (which is the principle responsible for the simplicity of the operation) is brought into view by making an

incision with a sharp scalpel, and one does not have to search for the vas.

#### II. A METHOD OF FEMALE STERILIZATION

Reviewing the literature on the subject, one finds described many methods of tubal sterilization. Some operators simply apply ligature, others sever them and reimplant the cut ends, while still others make an incision into the cornua, close the wound of the cornua, and suspend the free ends of the tubes from the posterior wall of the uterus.

Among other methods are: simple division of the tubes; excision of a portion of the tube with or without tying off of the cut ends; crushing off of the tubes with or without ligation at these points.

#### AUTHOR'S METHOD

My method is the following:

1. The patient is prepared the night before in the usual way for abdominal operation.
2. On the operating table under general or local anesthesia, a median incision is made upon the patient about two inches below the umbilicus.
3. After packing the intestines away, the uterus is brought well into the incision by the aid of vulsellum or Somer's forceps.
4. The salpinx is crushed in two places, with a pair of hemostats, one-quarter of an inch

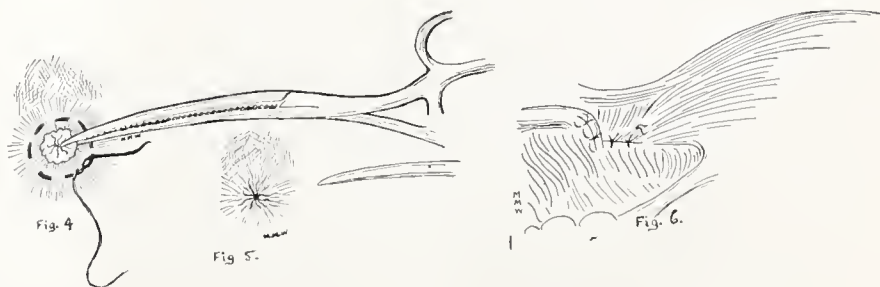


Fig. 4.—While the suture is being tied, the stump is invaginated with the aid of a hemostat. This not only prevents the possibility of an ovum passing down into the uterus, but also brings together the serous layers of the broad ligament for prompt healing and for better security of closure of the end of the tube.

Fig. 5.—The cornua as it appears after the purse-string suture tie is completed.

Fig. 6.—The salpinx, broad ligament and cornua, as they appear after the operation is completed. The distal end of the tube is buried in the broad ligament with aid of two or three sutures.

apart, as near the cornua of the uterus as possible. (See Fig. 1.)

5. A ligature of chromic catgut is applied to each of the crushed points. (See Fig. 2.)

6. The salpinx is severed between the ligatures. (See Fig. 2.)

7. A purse-string suture is applied, the same as for an appendix, around the stump at the cornua (See Fig. 3); and

8. While the suture is being tied, the stump is invaginated with the aid of a hemostat. (See Fig. 4.) This not only prevents the possibility of an ovum passing down into the uterus, but also brings the serous layers of the broad ligament together, which is very important for prompt healing and for better security of closure of the end of the tube.

9. The distal end of the tube is buried in the broad ligament with the aid of one or two sutures. (See Fig. 6.) The question has been asked as to why I bury the distal end. The answer is that by this means all raw surfaces are covered with serous membrane, and the tubes are prevented from sagging. No tissue is removed in operating according to this method.

The same procedure is carried out on the opposite tube.

#### ADVANTAGES OF THE ABOVE METHOD

The above method of female sterilization is perhaps not entirely original with me as far as the main principle is concerned, but is different from any heretofore described, in its order and combination of steps. It is, in my estimation, superior to other methods used, because:

1. It takes a short period of time to perform the operation, no reimplantation being necessary.

2. Bleeding is almost nil, by not having cut into the cornua.

3. It doubly insures against the possibility of an ovum entering the uterus; the purse-string suture by an invagination, as is done in an appendix operation, brings the serous membranes together over the already ligated stump of the tube.

4. No tissues are removed, the operation being salpingotomy instead of salpingectomy.

5. The tubes are supported in and by the broad ligament, so that there is no fear that they will sag, and no need of suspending them from the posterior wall of the uterus.

6. No raw surfaces are left open; thus there is no danger of adhesions, and the healing is prompt.

#### RESULTS IN BOTH SEXES

Already I have performed nearly one hundred sterilization operations, both male and female, and the results have been most gratifying, with no complications of any kind.

The male cases were discharged from the surgical service on the third day, and the women within ten to fifteen days, dependent upon the extent and upon the nature of the work done on

them in addition to the sterilization. When the abdomen was opened, all pelvic organs were carefully inspected. If abnormalities were present, they were corrected, and the appendix removed.

Male patients, if necessary, are permitted to return to light work immediately following the operation, wearing a scrotal suspensory. This is possible, because, when the operation has been done under local anesthesia, they feel as well as if nothing had been done to them.

A number of these patients, both male and female, have dated their recovery from mental disease from the day of the operation. This result has been more frequent among the female patients, especially in those with psychoses associated with pregnancies or fear of future pregnancies, and also those who had unhealthy pelvic conditions which were corrected at the same time. I have no doubt that a number of patients who have recovered entirely, or have made enough progress to be paroled, would have had to remain in the hospital had they not been sterilized so successfully.

#### REMOVAL OF OTHER FOCI OF INFECTION

The reason for emphasizing the removal of foci of infection at the time of sterilization is that these aggravate the symptoms of already existent mental disease. Following is a case in point:

A mental patient who was mute and so violent that no therapeutic measure was of avail, had markedly hypertrophied tonsils with pus pockets. On the second day of tonsillectomy he spoke one or two words, and on the fifth day he carried on a conversation, becoming a different man, losing his violence, becoming good-natured, coöperative, and helpful in the ward. Of course the condition of the tonsils did not cause the psychosis, but apparently their toxic condition was responsible for the aggravated symptoms.

#### CONCLUSION

I have endeavored to show in the foregoing discussion the following facts concerning human sexual sterilization:

1. That sexual sterilization is one of the most valuable means, not only for improving the quality of the human race and protecting its welfare, but also for curtailing the number of unhappy unfortunates being born into the world who so often become a burden to society.

2. That the removal of sexual organs in male and female, or the destruction of sex endocrines by other methods, is undesirable, with some few exceptions, since by such methods the individual is deprived of sexual desire, and of the pursuit of marital life, his or her physical characteristics being altered to that extent.

3. That simple surgical methods, such as vasectomy and salpingotomy are superior to other methods in cases which have no pathologic conditions necessitating extensive surgery or other



methods of sterilization, such as x-ray or radium; and

4. That the technique described in detail and illustrated with diagrams for both male and female sterilization has certain distinct advantages, as stated.

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## ALKALOSIS \*

ITS IMPORTANCE IN CERTAIN PREOPERATIVE AND POSTOPERATIVE LESIONS OF THE UPPER GASTRO-INTESTINAL TRACT

WITH CASE REPORTS

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THE loss of fluids by vomiting, due to high obstruction in the gastro-intestinal tract or to draining duodenal or jejunal fistula, presents problems to the surgeon that require careful consideration.

The obstruction may be due to a malignant, inflammatory or mechanical lesion situated usually in front of, behind, or at the pylorus. The fistula is, as a rule, traumatic or the result of an operative procedure. In either case the fluids of the upper gastro-intestinal tract are lost. The treatment and prognosis vary according to the length of time the lesion has persisted as well as the rapidity of the fluid loss.

### A CLINICAL PICTURE OF ALKALOSIS

Kussmaul<sup>1</sup> first described the clinical picture of gastric tetany. In 1914 Tileston<sup>2</sup> and Comfort found a high nonprotein nitrogen in the blood in animals with upper intestinal obstruction. McCann<sup>3</sup> in 1918 reported an increase in the alkali reserve in cases of pyloric closure. In 1920 MacCallum<sup>4</sup> found a marked fall in the blood chlorids in the same condition. Haden<sup>5</sup> and Orr in 1923 reported three patients who developed complications following gastro-enterostomy in which there were blood nitrogen retention, marked lowering of blood chlorids and high plasma carbon dioxid combining power. This was the first clinical application of the above reported findings. Murray<sup>6</sup> in the same year reported the same findings in five patients with organic pyloric obstruction. Several years ago it was thought that the clinical picture was due to the toxicity of the retained upper intestinal fluids.

The clinical picture above described has been termed alkalosis. It would be safe to venture that heretofore this condition has been termed

acidosis and uremia and treated as such. Alkalosis is the direct antithesis of acidosis, and the treatment must in like manner be different.

### UNDERLYING SURGICAL CONDITIONS

The common surgical conditions responsible for these symptoms are:

First: Pyloric or duodenal obstruction from benign or malignant lesions. The most frequent causes in this group are probably stenosis of the duodenum in association with chronic duodenal ulcer of the callus or inflammatory type, and cancer with inflammation of the pyloric end of the stomach.

Second: Postoperative complications following surgery in the upper abdomen. In this group the malfunctioning gastro-enterostomy is the best example.

Third: Postoperative duodenal or jejunal fistula with the loss of a large amount of fluids from the upper alimentary tract. Alkalosis from this cause is apt to be overlooked since the symptom, vomiting, which has come to be looked upon as always present is, with this condition, absent.

### BLOOD CHEMISTRY FINDINGS

*Blood Chemistry.*—A positive diagnosis of alkalosis is made by the blood chemistry findings, which are as follows:

1. Increase in the nonprotein nitrogen and urea of the blood.
2. Decrease in the sodium chlorid of the blood.
3. Increase in the alkali reserve or blood carbon dioxid combining power.

A normal blood urea of 26 mgms. per cent rises in mild cases from 60 to 80, but may in the severe cases reach from 200 to 400 mgms. per cent. The normal blood plasma NaCl of 560 mgms. per cent may fall to 350 or lower, while the normal blood plasma carbon dioxid of 56 to 65 usually rises to 80 or 90 volumes per cent, the level where tetany obtains being usually about 100 volumes per cent.

Increased blood urea is probably due to tissue destruction, as the urinary nitrogen is in excess of what would be produced by the patient's low protein food intake. This patient is practically being starved, as no food can be retained and the available food supply is only that given by glucose injections. The earlier observers thought there was actual kidney damage in such cases, but the modern trend is to believe that the lack of blood chlorids withdraws the necessary electrolytes to promote the osmotic function of the renal cells. True nephritis also gives chlorid retention which, however, tends to an acidosis. It may be difficult to obtain a true estimation of the phenolsulphonaphthalein because of temporary suppression of urine in the severe cases due to dehydration. The study of the blood chemistry gives a more accurate estimation of the severity and course of the alkalosis than the phthalein, urinary output or clinical appearance of the patient. Apparently the first change in the patient's chemistry is a lowered plasma chlorid. The increase in the carbon dioxid combining power of the plasma follows later and,

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\* Read before the General Surgery Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

| CHART 1.—Alkalosis Preoperative |                                   |                 |                           |                   |                                    |                                                                              |
|---------------------------------|-----------------------------------|-----------------|---------------------------|-------------------|------------------------------------|------------------------------------------------------------------------------|
| Date                            | Blood Urea<br>Mgm. per<br>100 cc. | Plasma<br>NaCl. | Plasma<br>CO <sub>2</sub> | Blood<br>Pressure | Hemoglobin<br>Per Cent<br>Newcomer | Remarks                                                                      |
| Normal                          | 26                                | 560-650         | 56-65                     | 150/90            | 85%                                |                                                                              |
| 8/7/27                          |                                   | 485             | 95                        | 110/80            | 80%                                | Vomiting for four days. Normal pulse rate. High color. Admitted to hospital. |
| 8/8/27                          |                                   |                 |                           | 130/85            |                                    | No further vomiting. P. S. P. 22 per cent.                                   |
| 8/9/27                          | 114.4                             |                 |                           |                   |                                    |                                                                              |
| 8/10/27                         |                                   | 540             | 71                        |                   | To date                            | Grams of glucose 525<br>Grams of NaCl. 120                                   |
| 8/11/27                         | 41                                | 600             | 76                        |                   |                                    | Wassermann negative                                                          |
| 8/14/27                         |                                   |                 |                           |                   |                                    | Discharged                                                                   |
| 9/16/27                         | 49.2                              | 510             | 87                        |                   | 67%                                | Clinically beginning alkalosis                                               |
| 9/17/27                         |                                   |                 |                           |                   |                                    | Gastro-enterostomy                                                           |
| 10/1/27                         |                                   |                 |                           |                   |                                    | Dismissed                                                                    |

in the borderline or incipient cases, may be within normal limits.

CASE REPORTS

A representative case of each of the three common clinical conditions responsible for alkalosis will be reported as follows.

The first case is submitted with the diagnosis:

*Alkalosis—Preoperative (obstruction due to a postpyloric lesion):*

CASE 1.—Mr. Mac., age forty-three, gave a typical duodenal ulcer history of twenty years' duration, with intermittent diet and alkali treatment. A few days after a period of dietary indiscretion he developed signs of upper intestinal obstruction as evidenced by nausea, vomiting, weight loss, weakness, and abdominal pain. He vomited everything taken by mouth, August 1 and 2, 1927. He was given nothing by mouth, but was given 4000 to 5000 cc.'s of 5 per cent glucose per rectum for forty-eight hours. Vomiting ceased for four days, but upon August 6 recommenced and continued for two days. He entered the hospital August 7 vomiting, dehydrated, semistuporous, and with a stiffness of the hands and feet which indicated approach-

ing tetany. When clenching his fist in the process of withdrawing blood for analysis he was unable to open his hand for a minute. The patient was very weak and the urine scant. The blood pressure, which for this man was normally 150 systolic and 90 diastolic, was now 110 systolic and 80 diastolic. His cheeks were red and his tongue furred. A clinical diagnosis of alkalosis was made, which was immediately confirmed by the blood chemical findings of:

- 1. Plasma CO<sub>2</sub>: 95 volumes per cent.
- 2. Plasma NaCl: 485 mgms. per cent.
- 3. Urea nitrogen: 114 mgms. per cent.
- 4. Phenolsulphonephthalein: 22 per cent.

During the next five days 138 grams of sodium chlorid and 700 grams of glucose, with an average daily fluid intake of 4000 cc., were given by the subcutaneous, rectal and intravenous routes. Following this treatment the plasma carbon dioxid returned to 71 volumes per cent and the plasma NaCl rose to 540 mgms. per cent. There was a lag in the return of blood urea to normal, but four days later it had reduced to 41 mgms. per cent. The blood pressure had risen in the meantime to 130 systolic, 85 diastolic. The patient's clinical condition was changed from one of shock, dehydration and semistupor to one of com-

| CHART 2.—Alkalosis Preoperative—Fluid Chart |                |                   |                   |                  |       |                  |                |            |        |       |       |                   |
|---------------------------------------------|----------------|-------------------|-------------------|------------------|-------|------------------|----------------|------------|--------|-------|-------|-------------------|
| Date                                        | Intake         |                   |                   |                  |       | Output           |                |            |        |       |       | Remarks           |
|                                             | Total<br>Fluid | Procto-<br>clysis | Subcu-<br>taneous | Intra-<br>venous | Mouth | Grams<br>Glucose | Grams<br>NaCl. | Emesis     | Lavage | Urine | Total |                   |
| 8/1/27                                      |                |                   |                   |                  |       |                  |                | Constantly |        |       |       | Seen at home      |
| 8/7/27                                      | 3000           | 1000              | 2000              |                  | 0     | 150              | 27             | Constantly |        |       | ?     | Pt. Adm.          |
| 8/8/27                                      | 4000           | 1500              | 2000              | 500              | 0     | 175              | 41.5           | 0          |        | 500+  | ?     |                   |
| 8/9/27                                      | 5300           | 1000              | 3000              | 800              | 500   | 200              | 52.            | 0          |        | 720   | ?     |                   |
| 8/10/27                                     | 2600           | 0                 | 0                 | 600              | 2000  | 60               | 6.             | 0          |        | 3200  | 3200  |                   |
| 8/11/27                                     | 3600           | 0                 | 0                 | 600              | 3000  | 60               | 12.            | 0          |        | 3000  | 3000  |                   |
| 8/12/27                                     | 4000           | 0                 | 0                 | 0                | 4000  | 0                | 0              | 0          |        | 2000  | 2000  |                   |
| 8/13/27                                     | 4000           | 0                 | 0                 | 0                | 4000  | 0                | 0              | 0          |        | 2740  | 2740  |                   |
| 8/14/27                                     | 5000           | 0                 | 0                 | 0                | 5000  | 0                | 0              | 0          |        | 3000  | 3000  | Discharged.       |
| Total                                       |                |                   |                   |                  |       | 645              | 138            |            |        |       |       |                   |
| 9/16/27                                     | 45000          | 1000              | 35000             | 0                | 0     | 100              | 23             | 0          | 0      | 500+  | ?     | Returns for G. E. |
| 9/17/27                                     | 3000           | 1000              | 2000              | 0                | 0     | 50               | 18             |            |        | 350+  | ?     | Gastro-Ent.       |



| CHART 3.—Alkalosis from Organic Obstruction |                                   |                                           |                           |                   |                                    |                        |
|---------------------------------------------|-----------------------------------|-------------------------------------------|---------------------------|-------------------|------------------------------------|------------------------|
| Date                                        | Blood Urea<br>Mgm. per<br>100 cc. | Plasma<br>Chlorids<br>Mgm. per<br>100 cc. | Plasma<br>CO <sub>2</sub> | Blood<br>Pressure | Hemoglobin<br>Per Cent<br>Newcomer | Remarks                |
| Normal                                      | 26                                | 560-650                                   | 56-65                     | 130/85            | 80%                                |                        |
| 12/8/26                                     |                                   |                                           |                           |                   |                                    | First operation        |
| 12/11/26                                    |                                   |                                           |                           |                   |                                    |                        |
| 12/14/26                                    |                                   |                                           |                           |                   |                                    |                        |
| to                                          |                                   |                                           |                           |                   | 54%                                | Vomiting frequent      |
| 12/21/26                                    |                                   |                                           |                           |                   |                                    | Lavage frequent        |
| 12/21/26                                    | 170                               | 370                                       | 87                        | 80/?              |                                    |                        |
| 12/22/26                                    | 215                               | 450                                       | 86                        | 100/85            |                                    |                        |
| 12/23/26                                    | 164                               | 520                                       | 80                        | 110/75            | 59%                                | Second operation       |
|                                             |                                   |                                           |                           |                   |                                    | P. S. P. 12.5 per cent |
| 12/24/26                                    | 165                               | 612                                       | 82                        |                   |                                    |                        |
| 12/27/26                                    | 117                               | 630                                       | 63                        | 105/70            | 35%                                |                        |
| 1/5/27                                      | 32                                | 615                                       | 78                        |                   |                                    | Vomiting for two days  |
| 1/18/27                                     |                                   |                                           |                           |                   |                                    | Dismissed              |
| 2/4/27                                      |                                   |                                           |                           |                   |                                    | Improvement continued  |

fort and well-being. Charts 1 and 2 illustrate the blood chemical changes and the fluid balance.

The second case had as its diagnosis:

*Alkalosis—Postoperative (from malfunctioning gastro-enterostomy).*

CASE 2.—Mr. B., age forty, registered at the clinic November 24, 1926. He gave a long history of duodenal ulcer, treated successfully medically, but with considerable reactivation in the last two years and, in the last few months, much bleeding. The hemoglobin at this time was 39 per cent and the red blood cells, 2,500,000. Upon December 8, 1926, a posterior gastro-enterostomy was done for a large calloused duodenal ulcer just distal to the pyloric sphincter. There was no particular obstruction noted at the time of operation. The postoperative course was normal up to the sixth day, December 14, when vomiting began. This continued for seven days in spite of frequent lavage and other methods instituted to combat dilatation of the stomach and apparent obstruction. The patient was rapidly becoming dehydrated, markedly prostrated and weak. The skin and tongue were dry and the lips and ears red out of proportion to the patient's anemia. The systolic blood pressure fell to 80 and the diastolic was impossible to obtain. The patient was semicomatose and stuporous, with the urine scant and the phthalein excretion in two hours only 12.5 per cent. In fact the patient would have appeared on first glance to be uremic. There were, however, no formed elements in the urine nor albumin nor casts.

Suspecting a toxemia of intestinal obstruction from a nonfunctioning gastro-enterostomy, the blood chemistry revealed the typical picture of alkalosis consisting of:

1. Increased blood nitrogen (urea 170 mgms. per cent).

2. Decreased sodium chlorid of the blood plasma (370 mgms. per cent).

3. Increased carbon dioxid combining power of blood serum (87 volumes per cent).

Two days of intensive water, salt and glucose therapy by the subcutaneous, proctoclysis and intravenous methods were instituted. In twelve hours, vomiting had ceased and the patient's extreme toxemia had disappeared. The blood pressure was: 110 systolic, 85 diastolic. The blood chemistry showed on the second day of treatment, blood urea of 164 mgms. per cent, sodium chlorid 520 mgms. per cent, and carbon dioxid 80 volumes per cent.

On December 23, 1926, fifteen days after the first operation, nine days after vomiting began and two days after the treatment for alkalosis was started, the abdomen was opened and an obstruction of the gastro-enterostomy opening revealed. The transverse mesocolon had become attached to the proximal gastro-enterostomy loop, drawing it down. The first portion of the distal loop had become adherent to the proximal loop, the result being that when the proximal loop was thus down, the distal loop was angulated over the ligament of Treitz, because the mesocolon had slipped, completely obstructing the gastro-enterostomy stoma. The transverse mesocolon was freed and the stoma enlarged. The patient stood the operation remarkably well and improved rapidly, both clinically and from the standpoint of the blood chemistry, the plasma carbon dioxid of 63 volumes per cent and the plasma NaCl of 630 mgms. per cent being normal four days later on December 27, 1926. The blood urea still remained high at 117 mgms. per cent, due in part to oliguria from dehydration and from a slight nephrosis as shown by casts, albumin and an occasional red blood cell in the urine. A return of nausea and vomiting for two days (January 4 and 5, 1927), was quickly mirrored in the blood chemistry by the return of a slight

| CHART 4.—Alkalosis from Organic Obstruction—Fluid Chart |             |               |              |              |       |               |             |        |        |       |       |                       |
|---------------------------------------------------------|-------------|---------------|--------------|--------------|-------|---------------|-------------|--------|--------|-------|-------|-----------------------|
| Date                                                    | Intake      |               |              |              |       | Output        |             |        |        |       | Total | Remarks               |
|                                                         | Total Fluid | Procto-clysis | Subcutaneous | Intra-venous | Mouth | Grams Glucose | Grams NaCl. | Emesis | Lavage | Urine |       |                       |
| 12/21/26                                                | 4700        | 2000          | 2000         | 700          | 0     | 200           | 58          | 400    | 1000   | ?     | 1400  | 1st operation 12/8/26 |
| 22                                                      | 3600        | 1000          | 2000         | 600          | 0     | 150           | 36          | 0      | 0      | 400   | 400   |                       |
| 23                                                      | 4000        | 1000          | 2000         | 1000         | 0     | 200           | 57          | 0      | 0      | 600   | 600   | 2nd operation.        |
| 24                                                      | 3000        | 2000          | 1000         | 0            | 0     | 150           | 27          | 0      | 0      | 700   | 700   |                       |
| 25                                                      | 1250        | 1000          |              |              | 250   | 50            | 9           | 0      | 0      | 1700  | 1700  |                       |
| 26                                                      | 2000        | 1000          |              |              | 1000  | 50            | 9           | 0      | 0      | 1500  | 1500  |                       |
| 1/ 4/27                                                 |             |               |              |              | Diet  |               |             | 1000   | 0      |       | 1000  |                       |

CHART 5 (MR. G. E. S.).—*Alkalosis from Jejunal Fistula*

| Date    | Urea | Plasma NaCl. | Plasma CO <sub>2</sub> | Blood Pressure | Hemoglobin | Remarks                                                       |
|---------|------|--------------|------------------------|----------------|------------|---------------------------------------------------------------|
| 3/21/27 | 67   | 645          | 54                     | 180/110        | 93%        | P. S. P. 35 per cent                                          |
| 3/22/27 |      |              |                        |                |            | Operation. Cholecystectomy and drainage.                      |
| 3/31/27 |      |              |                        |                |            | Fistula with digestion of wound noted.                        |
| 4/5/27  |      | 520          | 40                     |                |            |                                                               |
| 4/20/27 |      |              |                        |                |            | Continuous suction to wound.                                  |
| 4/27/27 | 48   | 445          | 85                     | 80/60          | 82%        | Condition critical.                                           |
| 4/29/27 |      | 500          | 71                     | 88/62          |            |                                                               |
| 5/2/27  |      | 520          | 70                     |                |            |                                                               |
| 5/4/27  |      |              |                        |                |            | No change in condition by treatment, so closure fistula done. |
| 5/7/27  | 40   | 625          | 57                     | 150/100        |            | Marked clinical improvement.                                  |

alkalosis, as seen in the plasma carbon dioxid returning to 78.6 volumes per cent. The plasma sodium chlorid was 615 mgms. per cent (normal) and the blood urea about normal at 32 mgms. per cent. This upset was of short duration, responding to further medical treatment, and the patient left the hospital January 18, 1927, with a good appetite and rapidly increasing strength and weight. By February 4 he had gained considerable weight (132 pounds) and was feeling quite well. Tables 3 and 4 from this case illustrate the important factors of fluid, sodium chlorid, and glucose in the treatment of these cases and also the blood chemical change before and after treatment.

The third case was diagnosed:

*Alkalosis—Postoperative (from jejunal fistula).*

CASE 3.—Mr. S., age sixty-six, came to the clinic on March 21, 1927, suffering from acute gall-bladder disease. He was obese, a subject of hypertension (180 systolic and 110 diastolic). He also had an enlarged prostate. Because of his serious clinical condition the blood chemistry was done preoperatively, which revealed the following: blood urea, 67 mgms. per cent; plasma NaCl, 645 mgms. per cent; plasma carbon dioxid, 54 volumes per cent. Cholecystectomy, with drainage, was done for acute, gangrenous cholecystitis without stones on the following day, March 22. Drainage of bile and serum was profuse, but apparently normal until March 31, nine days after operation, when, because of digestion of the wound from upper intestinal secretions, we knew that a fistula existed, but decided to treat conservatively, and continuous suction was applied. A check of the blood chemistry on April 5, five days later, showed plasma sodium chlorid 510 mgms. per cent; plasma carbon dioxid 40 volumes per cent. At no time postoperatively was there any vomiting, though from March 31 large amounts of intestinal fluid and secretion were removed by suction through the fistula wound. On April 27 the patient seemed much weaker and, as the blood pressure was found to be 80 systolic and 60 diastolic, blood studies were again made, which showed: plasma sodium chlorid, 445 mgms. per cent; plasma carbon dioxid, 85 volumes per cent; blood urea, 48 mgms. per cent. Large amounts of sodium chlorid and glucose solution were given to the patient which, however, did not remarkably improve his condition. Accordingly on May 4 closure of the jejunal fistula was done. Three days later, May 7, the blood pressure had risen to 150 systolic and 100 diastolic. Plasma sodium chlorid returned to 625 mgms. per cent, and the plasma carbon dioxid dropped to 57 volumes per cent.

This case illustrated the development of an alkalosis from the loss of large amounts of intestinal secretion via the upper intestinal fistula route, and

without vomiting. It is the type of alkalosis most frequently overlooked.

Chart 5 is a graphic representation of this condition.

CARDINAL FEATURES IN DIAGNOSIS

These three types of conditions, therefore, illustrate the cardinal features in making a diagnosis, namely:

1. A history of upper gastro-intestinal fluid loss by vomiting or fistula.
2. Dehydration and its consequent oliguria.
3. Prostration.
4. Low blood pressure.
5. Tetany.

Vomiting may or may not be present, alkalosis being seen clinically in some patients who have not vomited as in our case of jejunal fistula, or just as produced by Haden and Orr of Kansas City in rabbits, animals which cannot vomit; in monkeys by suture of the pylorus; and in dogs by suture of the cardiac end of the stomach. The vomiting is usually of large amounts, but not projectile. Dehydration is extreme with dry, red, furred tongue. Prostration is often extreme. Patients become semicomatose, have a thready pulse, often appearing uremic as suggested by low urinary output. There is an absence of acidosis or uremic odors about the patient's breath or room, although they do smell cadaveric, the skin being cold and dry. Neuromuscular twitchings and a stiffness of the fingers and toes may go on to a true tetany, often seen when the plasma carbon dioxid reaches 95 to 100 volumes per cent. There is a low systolic and diastolic blood pressure, reaching a level as low as that seen in severe shock.

TREATMENT

While the treatment of the underlying causes of alkalosis is usually surgical the operative risk is very much decreased by special preoperative management. In the cases due to edema about a gastro-enterostomy opening, appropriate treatment counteracts the effects of the toxemia until motor muscle function is restored to the blocked intestines, or the swelling and inflammatory re-



action subsides. This often makes further surgery unnecessary. The whole symptom syndrome of dehydration—oliguria, shock, low blood pressure, prostration as well as the blood chemical changes call for three things: (1) water; (2) salt; (3) glucose.

Large amounts of water are needed to combat shock, produce a positive fluid balance, promote diuresis and eliminate toxic nitrogenous waste products. Glucose spares protein by giving available exogenous food, induces diuresis, and promotes intestinal peristalsis.

Sodium chlorid is needed by the tissues, as is proved by the very small urinary output. Even large amounts have been given intravenously or subcutaneously. We have found very little urinary NaCl for several days after the blood chlorids have reached normal figures.

Water, salt and glucose can be given in almost any combination or strength by proctoclysis, subcutaneously or intravenously. It is our practice to give from 1 to 3 per cent sodium chlorid and 10 per cent glucose in fresh, triple-distilled water intravenously and 5 per cent glucose in saline by proctoclysis and subcutaneously up to 3500 cc. to 4000 cc. daily, care being taken not to water-log the patient. Our experience is that the intravenous fluids, if given slowly and of properly prepared chemicals and solutions, give the most marked and the quickest results. A chart of the fluid intake and output is kept.

#### RESULTS

Concomitant with diuresis and the return of moisture to the tongue there is marked clinical improvement with increased blood pressure and disappearance of shock. Coincident with this clinical improvement the blood chemical figures are noted to be returning to normal. The treatment is 100 per cent efficacious, so far as the alkalosis is concerned. If instituted too late the patient may still die of shock or obstruction.

These cases emphasize several points in the preoperative diagnosis and treatment and in the postoperative management of some of the high gastro-intestinal lesions. They call attention to several possible errors in both diagnosis and treatment of acutely toxic patients associated with stomach or upper intestinal conditions as follows:

1. *Uremia* may be suspected from stupor, dehydration, anemia, reduced phenolsulphonephthalein and high blood urea.

2. *Acidosis* may be considered from what appears to be impending coma, heightened color in mucous membranes, clammy, cadaveric impression of the patient, who may even have irregular, Cheyne-Stokes-like respiration.

3. Vomiting and lavage are often allowed to continue too long before obtaining blood chemistry studies for exact diagnosis.

4. Soda solutions are used for lavage when they are definitely contraindicated by a condition of alkalosis.

5. Too little fluid and especially too little sodium chlorid solution is given routinely postoperatively,

for if continued for several days postoperatively up to the time when edema of the operative field may subside, toxemia may be prevented and a permanent obstruction aborted.

#### SUMMARY

1. Our attention is called to a clinical syndrome, the degree of which may be measured by blood chemistry studies.

2. Early recognition of alkalosis depends upon loss of upper gastro-intestinal fluids, oliguria, low blood pressure, fluid deficit and blood chemistry studies, namely, high carbon dioxid combining power, high blood urea, and lowered plasma chlorids.

3. Its recognition is paramount, so that a proper regimen is instituted before surgical measures are taken.

4. Administration of sodium chlorid, glucose, and water, preferably in hypertonic solutions, is specific for the toxemia.

5. The mortality in these conditions can be lowered if the surgeon is ever on his guard for this clinical syndrome and applies the management prescribed before surgery is attempted.

Woodland Clinic.

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#### DISCUSSION

CLARENCE G. TOLAND, M. D. (523 West Sixth Street, Los Angeles).—Doctor Larson's splendid treatment of the subject of alkalosis is a striking example of the value of correlating the scientific with the practical principles of the art of surgery.

The modern surgeon should have a thorough understanding of the physiological and chemical changes produced by excessive fluid loss in the upper gastro-intestinal tract; particularly those seen in high intestinal obstruction.

Alarming symptoms, such as gastric tetany occasionally develop, and unless proper therapeutic measures are instituted, a high mortality occurs. Gastro-enterostomy was formerly advocated for gastric tetany to prevent the absorption of toxic digestive products, which were then considered to be the cause of the condition. What probably occurred was a discharge of the hydrochloric acid and chlorids of the gastric juice into the intestinal tract, there to be absorbed and thrown into the circulation. The acid base equilibrium of the blood stream was thus re-

stored and not infrequently satisfactory results were obtained.

The study of alkalosis, its production and treatment, is most interesting, and is unquestionably one of the major contributions of modern times to gastro-intestinal surgery.

✽

DOCTOR PULFORD (closing).—Alkalosis now, like acidosis in the past, should bring to mind a definite clinical and laboratory picture. The purely medical aspects of this problem demand our attention, and this, as with almost all modern medical procedure, requires teamwork in its proper handling.

Clinically the two best aids to recognizing alkalosis early are the finding of a very low blood pressure and extreme prostration. In the medical treatment of alkalosis a prompt administration of water, salt and glucose may either tide over and make operation unnecessary, or change a poor surgical risk to a safe one, if secondary operation is necessary.

The chief mistakes in the medical management of these cases are: too frequent lavage and the administration of alkalis.

Advanced grades of alkalosis are seldom permitted at present, as a low plasma sodium chlorid is found early in any upper intestinal obstruction case and a 3 per cent sodium chlorid solution given intravenously long before the plasma CO<sub>2</sub> rises to any extent.

Our cases, therefore, emphasize the fact that there is a clinical syndrome and accurate laboratory diagnostic method and a specifically indicated and efficacious medical treatment for a frequently overlooked toxemia called "alkalosis."

### TOXIC GOITER \*

#### THE IMPORTANCE OF A DIFFERENTIAL DIAGNOSIS

By A. B. COOKE, M. D.

Los Angeles

DISCUSSION by Philip K. Gilman, M. D., San Francisco; Carl L. Hoag, M. D., San Francisco; A. S. Lobingier, M. D., Los Angeles.

PRIMARILY goiter is a clinical problem. Many fascinating questions of scientific and controversial interest are also involved, to be sure; but these are of secondary importance. What we seek first to know about the individual case is what form of the disease it represents and what method of treatment promises the surest and safest relief. Simplicity of classification undoubtedly promotes clear thinking and correct conclusions on these fundamental points.

From the clinical standpoint a goiter is either toxic or nontoxic. In the former, active treatment is always required; in the latter, the matter of treatment is often decided by the patient.

#### FAMILIAR TYPES OF TOXIC GOITER

The purpose of this paper is to limit itself to a consideration of the first-named class, *i. e.*, toxic goiter, and is further limited to its two most familiar types, hyperplastic or exophthalmic goiter, and toxic adenoma.

Are these two types of thyroid disease in reality clinical entities? Is the output of the hyperplastic thyroid identical in kind with that of the overactive adenomatous gland? Or does the hyperthyroidism of the one differ in essence from that of the other so that the matter of their clinical differentiation may properly concern us?

In the present state of our knowledge we cannot turn to chemistry for the answers to these questions, though, as Plummer suggests, when methods of investigation have been sufficiently perfected it may well prove that the several differences observed in the phenomena of the two forms are due to some structural variation in the composition or arrangement of the thyroxin molecule.

We must needs, therefore, have recourse to the phenomena themselves for the answers. If these are critically examined and fairly adjudged, separately and as a whole, the conclusion is inevitable, I think, that the difference between the hyperplastic goiter and the toxic adenoma is more than a difference of degree. It is scarcely conceivable that the same cause could give rise to disease syndromes so markedly and invariably different both in developmental sequence and in actual manifestations. This view, it must be admitted, is not universally accepted. But the question, if raised at all in current literature, is usually disposed of with simply a passing statement of the writer's opinion. Nowhere do we find it discussed with the fullness and seriousness its importance would seem to merit.

#### TABLE OF DIFFERENTIAL POINTS

The foregoing is a table listing the salient differential points in parallel columns:

Any one or all of the foregoing differential points may be modified and the clinical picture confused when, as is not infrequently true, both types of pathology are present in the same case. The diagnosis of hyperthyroidism may, of course, be made readily in such a case; but a clear-cut differentiation may be very difficult or quite impossible. This fact should be kept constantly in mind when the individual patient is being studied.

Let us consider now a little more fully the two last points of the differential scheme, namely, lymphocytosis, and iodine therapy.

#### LYMPHOCYTOSIS AND LEUKOPENIA

*Lymphocytosis.*—More than a generation ago the great pioneer student of the goiter problem, Kocher, stated that the blood in true Graves' disease was characterized by both lymphocytosis and leukopenia. A few years later Halsted announced that he had verified Kocher's observation. Slight impression seems to have been made, however, for, in spite of the prestige of these two illustrious names, the literature of the past twenty-five years contains nothing notable on the subject.

Several years ago my attention was caught by a passing allusion of de Quervain to the original observation of Kocher, and I determined to investigate it for myself. Fortunately routine blood examinations are required for all patients by modern hospitals; these histories and those of private patients made available a considerable amount of data.

Without introducing dry statistics let me say briefly that I am convinced that Kocher's finding was and is correct, *i. e.*, that in true, uncomplicated Graves' disease the blood picture shows both a lymphocytosis and a leukopenia. The white cell

\* Read before the General Surgery Section of the California Medical Association at its Fifty-Seventh Annual Session April 30 to May 3, 1928.



*Differential Diagnosis of Exophthalmic Goiter and Toxic Adenoma*

## EXOPHTHALMIC (HYPERPLASTIC) GOITER

1. Exophthalmos (60 to 80 per cent).
2. Goiter of soft, uniform consistence, usually symmetrical.
3. Etiology—Uncertain; probably psychic trauma.
4. Thrill and bruit over thyroid vessels; characteristic when present.
5. Toxicity—Appears with goiter.
  - (a) Develops rapidly; high degree quickly reached.
  - (b) Tendency to remissions; crises.
  - (c) Fatigue, hunger, loss of weight; early and prominent features.
  - (d) Digestive disturbance, such as diarrhea, etc., frequent.
  - (e) Mental symptoms often marked.
6. Blood pressure—average 140/60.
7. Surface heat increased.
8. B. M. R.—50 to 100 per cent plus.
9. Occurs at all ages, even in childhood; most frequent in early adolescence.
10. Marked lymphocytosis.
11. Iodin therapy helpful—temporarily.

## TOXIC ADENOMA

1. No exophthalmos.
2. Firm, nodular, seldom symmetrical.
3. Etiology—Endemic; probably iodine deficiency.
4. Not so.
5. Goiter years before toxicity.
  - (a) Toxic symptoms develop slowly, always milder.
  - (b) No remissions; no crises.
  - (c) All later; never so prominent; sometimes not observed.
  - (d) Rare.
  - (e) Not so.
6. Higher; average 160/100.
7. Not so.
8. Lower—25 to 50 per cent plus.
9. Rarely seen before fourth decade.
10. Normal blood picture.
11. Aggravated by iodine therapy.

count is often below 5000 and the lymphocytosis above 40 per cent.

This characteristic finding may be modified by several different factors, the most common of which undoubtedly is the coexistence of some acute inflammatory process. Here the leukopenia may be replaced by leukocytosis; but even in such case a certain degree of lymphocytosis will often be found to persist.

Again, the blood picture is unquestionably altered in many cases by treatment undergone before the examination is made. It is impossible to estimate the extent to which it may be modified by iodine therapy; we know that it may be profoundly modified by radiation therapy. The famous statement of a well-known surgeon that he rarely saw a case of gastric ulcer until it had been "cured" several times by the internist might well be paraphrased to apply with equal force to toxic goiter.

In toxic adenoma, when uncomplicated, the blood picture is as a rule entirely normal. The important matter to remember in this connection is the great frequency with which the adenomatous thyroid contains areas of hyperplasia as well. This is found to be true so uniformly in the specimens coming to the laboratory that one pathologist tells me he regards it as the usual condition. Obviously, should the hyperplastic elements predominate, a normal blood picture could scarcely be expected.

Attention is called to this particular point, not because it is new or infallible, but because it has been so long neglected. My own conclusion with reference to it may be stated very emphatically, that careful study of the blood picture in toxic goiter will give valuable aid in many cases and should never be omitted.

## IODINE THERAPY—ITS USE AND ABUSE

*Iodin Therapy.*—There is unity of opinion as to the beneficial action of iodine properly administered in true hyperplastic goiter. There is, however, some disagreement as to its detrimental action in toxic adenoma, though the weight of

authority is largely in favor of this view. Personally I have no doubt upon the subject, because I have seen very many cases of toxic adenoma in which a mild degree of toxicity had been greatly increased by iodine medication, and I have seen very few in which it appeared to be at all beneficial. This conflict of opinion is probably due to failure to recognize that the two types of pathology are often associated in the same gland. The mere presence of palpable nodules in a hyperactive goiter does not warrant a dogmatic diagnosis of toxic adenoma.

The routine use of iodine as a differential test, therefore, is not to be recommended. If, after the several other diagnostic points have been elicited and duly weighed, there is still uncertainty, iodine in small dosage may be cautiously administered, the patient being kept under close observation and the drug promptly discontinued if unfavorable results appear.

Assuming, then, that there is a real difference in the effect of iodine medication in the two varieties of toxic goiter—that in one it is distinctly, though only temporarily beneficial, while in the other it is apt to prove harmful—their differential diagnosis becomes a matter of great and far-reaching importance.

While not strictly pertinent, a few additional comments in this connection may be pardoned. Iodine is an invaluable remedy in the treatment of goiter when used with discrimination. But the promiscuous routine employment of the agent so widely prevalent at the present time constitutes at once the greatest difficulty and the greatest menace of the entire goiter problem. Not only is it responsible for confusion, often hopeless, in the matter of accurate differential diagnosis, but it has added appreciably to the sum of unnecessary ill health and probably also to the total of preventable deaths. The records of hospitals and clinics, where goiter cases are seen in considerable number, uniformly show that the average duration of toxic symptoms before surgery is sought has increased tremendously. Since Lugol's

solution became a familiar household remedy, these patients are coming to operation only after irremediable damage has been done to the vital organs and the margin of surgical safety definitely lowered. Increase in primary and in postoperative mortality loom as probable consequences. Added to this is the commonly observed fact that restoration to normal health is always slow and often far from complete. Permanent invalidism follows in many instances.

For this deplorable state of affairs the public itself is responsible. The tendency to accept as gospel truth anything read on health questions, regardless of its source, seems to be a general weakness of human nature; and the inclination to indulge in self-medication is a well-recognized companion weakness. But our own profession is by no means blameless. Many physicians advise or prescribe iodine indiscriminately—for no better reason apparently than that their hapless patients appear to have goiters. In the past five years, in very few cases observed by me, either in clinic or in private practice, has the clinical picture not been modified and the diagnosis beclouded by previous iodine medication.

There is no mystery and should be no uncertainty about the use of iodine in the treatment of goiter. Let us do our part to stop its abuse.

#### CONCLUSIONS

1. Exophthalmic goiter and toxic adenoma are distinct types of thyroid disease.
2. Differential diagnosis is always possible in typical cases. Mixed cases may present considerable difficulty.
3. Aside from scientific interest it is important to make the differentiation in every case because proper choice of treatment is at stake.
4. The prevalent universal use of iodine therapy is at once a menace and a reproach.

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#### DISCUSSION

PHILIP K. GILMAN, M.D. (350 Post Street, San Francisco).—Doctor Cooke has well expressed the generally accepted ideas regarding toxic conditions of the thyroid gland. His aim at simplicity of classification is to be commended; that all will agree with him is not to be expected. Until we have one based upon an exact knowledge of etiology perhaps a universally accepted classification will be impossible.

From a clinical standpoint the segregation of goiter into either toxic or nontoxic is satisfactory. Subdivision of the toxic variety into exophthalmic and toxic adenomas is perhaps less definite. As with tumors, both connective tissue and epithelial, it is possible to arrange a series at one end of which the growth is definitely malignant and at the other end definitely benign with intermediate types which it is difficult, if not impossible, to classify as either benign or malignant. So with goiter we find definite hyperplastic conditions at one end of a series and definite so-called toxic adenomatous glands at the other, with mixed types not so readily segregated.

In our experience this lack of definite anatomical differentiation at times applies to clinical differentiation. Clinical differentiation is not always clear. We have observed exophthalmos in exceptional instances of toxic adenoma; and a uniform goiter, quite symmetrical, the seat of a diffuse adenomatosis. Differentiation by the administration of iodine is not absolute,

as occasionally cases of toxic adenoma show definite improvement under its use. As Doctor Cooke well states, where both types of pathology are present in the same gland, clinical differentiation may also be very difficult. Cases of adenomatosis histologically proven, at times give symptoms attributable to the hyperplastic type.

Doctor Cooke is to be congratulated upon calling attention to the blood picture as an aid in differential diagnosis between these two types of toxic thyroid. Too little attention has been given to this point.

Doctor Cooke closes his readable and instructive paper with this sentence, "The prevalent universal use of iodine therapy is at once a menace and a reproach." Amen. Iodine does not cure. Iodine is one of the most valuable—if not the most valuable—single means we have in the preoperative preparation of a hyperplastic goiter patient if the patient has not been previously allowed or ordered to misuse it. I feel inclined to amend this closing sentence of Doctor Cooke's paper by suggesting the substitution of *misuse* for use.



CARL L. HOAG, M.D. (177 Post Street, San Francisco).—Doctor Cooke has done well to select the simplest classification of goiter for clinical use, and has accurately pointed out the main differences between the typical hyperplastic (exophthalmos) and the adenomatous groups. Well-defined cases of either kind are not difficult to differentiate from each other. It must be remembered, however, that about 30 per cent of the hyperplastic goiters have no exophthalmos or bruit when they present themselves for treatment. Contrary to the typical type they frequently have a hard, nodular, irregular gland. This irregularity is due to an enlargement of the various lobules without a corresponding increase in the intervening septa. These nodules feel like multiple adenoma, and frequently cannot be distinguished from them. Just why an exophthalmos and a bruit do not develop in these cases has caused much speculation. Personally I believe that those developing most rapidly are most likely to have exophthalmos, those coming more slowly may permit the body to adjust itself to the toxic influence, just as a chronic infection gives no fever while acute processes produce the most marked reaction. On the other hand, these so-called cases of hyperplastic goiter without exophthalmos may eventually prove to be more accurately classed under the heading of thyroiditis. We are familiar with the iron-hard (iron-hard strumitis) cases of thyroiditis, but know less about the more chronic types of reaction.

How are we to distinguish between the cases of hyperplasia (or thyroiditis) from the adenomas? Probably the degree of toxicity helps most, as a high basal metabolic rate suggests hyperplasia. The adenomas seldom give a basal metabolic rate of more than plus fifty, even in most extreme cases. If small doses of iodine over a short period of time fail to decrease the symptoms hyperplasia is less probable. I agree with Doctor Cooke that the adenomas are not benefited but usually aggravated by iodine therapy. Iodine seems to have little or no effect in thyroiditis.

There can be no doubt that cases of mixed hyperplasia and adenoma do exist together. However, I think these cases are relatively uncommon, and when present the one is usually incidental to the predominating type in the clinical picture.

I have not found the blood count sufficiently constant to be of any aid in diagnosis.

Psychic instability (particularly crying) in my experience has been the first symptom of toxicity in many cases of adenoma.

A hemorrhage into a silent adenoma may precipitate toxicity with the usual sequence of symptoms.

I heartily agree with Doctor Cooke in all of his conclusions.



A. S. LOBINGIER, M.D. (716 Merritt Building, Los Angeles).—The degree of toxicity in the forms of goiter under consideration cannot be explained by our



present knowledge of their relative histologic structure. I remember Theodor Kocher (when I was with him) attached the greatest importance to the study of the histogenesis of toxic goiter in arriving at a proper classification. But the biochemistry of this disease has yet to be satisfactorily worked out, and our present knowledge of it leaves much to be desired. The very fact that a hypertoxic thyroid may contain adenomata and that an adenomatous thyroid may contain areas of so-called hyperplastic structure, which may greatly modify the symptoms, lends confusion to any categorical effort in classification. Until we have a better histologic or chemical basis for definite differentiation in these two major clinical forms of toxic goiter, the ones given by the author and generally accepted must suffice.

From what we do know it is obvious that one who would successfully treat this disease of the thyroid gland must have given years of thoughtful study to the subject and have acquired a seasoned judgment based on a large clinical experience with toxic goiters. One can only wonder at the casual manner in which the empiricist will reach for Lugol's solution, or advise and undertake operation with little or no preliminary study or preparation of the patient for operation. Irreparable damage may be done to a patient who might otherwise have been a favorable subject for surgery, by the prolonged and unintelligent use of iodine. Such a patient cannot be reestablished by the resumption of iodine preparation, and a patient who might have been a favorable risk, if iodine had not been given at all or if only given for the usual preparatory period, has been changed into a very hazardous risk by excessive iodination. The author has placed a very proper emphasis upon this abuse of iodine.

The hot, smooth, soft, pulsating tumor; the thrill, the digital tremor and moist palms, the nervous, restless, anxious attitude—it is not necessary to have exophthalmos to properly classify the form of goiter from which this young patient is suffering. The nodular tumor of slow development without remissions, but with high blood pressure and metabolic rate under 50 with toxic symptoms coming on late, may easily be named an adenomatous goiter. Between these extremes of definite symptomatology are the cases in which a modifying histology as well as symptomatology will form a more or less confusing picture.

Every case of toxic goiter must be individually studied. The class in which its anatomical structure, predominating symptoms and laboratory tests place it will determine for the experienced surgeon the method of treatment which will offer the patient the safest and surest relief.

### X-RAY THERAPY IN DERMATOLOGY \*

By LOUIS F. X. WILHELM, M. D.  
Los Angeles

DISCUSSION by H. J. Ullmann, M. D., Santa Barbara; Douglass W. Montgomery, M. D., San Francisco; Irving R. Bancroft, M. D., Los Angeles.

THE epoch-making discovery of x-rays by Conrad Roentgen<sup>1</sup> in 1894 and the publication of his work in 1895 was followed by a period devoted to a study of their practical application in medicine. Soon it was found that x-rays were of value in the treatment of skin diseases. Various parts of the world reported new indications for their use. Freund and Schiff<sup>2</sup> in Vienna, Walsh,<sup>3</sup> Morris<sup>4</sup> and Sequeira<sup>5</sup> in England, Oudin, Barthelmy and Darier<sup>6</sup> in France, and Pusey<sup>7</sup> and Williams<sup>8</sup> in this country were pio-

neers in this promising new field of therapy. For a number of years the use of x-ray therapy was increased so as to include almost every type of dermatologic condition. In fact roentgenologists were ready to apply x-ray treatment to every skin lesion without even attempting a diagnosis. Then quite suddenly the x-ray almost was thrown into discard on account of many disagreeable complications due to the want of measured dosage. The introduction of the Coolidge vacuum tube and the perfection of a reliable ammeter and voltmeter soon followed. These instruments combined with Wehnelt and Benoist's penetrometer, Sabouraud-Noire pastilles, Holzknicht and Corbet's radiometers allowed direct measurement of current. MacKee and Remer,<sup>9</sup> using these aids to standardization, evolved the method of indirect dosage now in general use. The MacKee<sup>10</sup> skin unit is the amount of x-ray necessary to cause a temporary epilation of the scalp hair. It is four-fifths of the minimum erythema dose.

### PATHOLOGY

The pathology of x-ray therapy of the skin was studied by Highman and Rulison<sup>11</sup> of New York. The elastic tissue, the glands, and the normal proliferative power of the skin are affected. The arterioles lose their elasticity and the corium tends to atrophy. The effect of x-ray therapy on the skin parallels from beginning to end the picture of scleroderma and, if more marked, the picture of xeroderma pigmentosum. These pathologic changes are slowly progressive and usually require years to develop to the fullest degree. Epithelioma is in a large percentage of instances the ultimate change.

The impression has obtained for many years that blonds are more susceptible to x-ray therapy than brunettes. The appearance of marked pigmentation following one-fourth skin unit (MacKee) of x-ray in several brunettes prompted the interesting paper of MacKee and Eller<sup>12</sup> on the variation of skin tolerance. One of these patients, a brunette about twenty-five years old, was treated at the Vanderbilt Clinic, New York. Following this reaction we treated three areas of skin one centimeter square on her forearm with one-fourth, one-half and three-fourths skin units x-ray and found pigmentation in each area. Subsequently toleration tests were carried out in 210 patients and over 40 per cent showed some pigmentation following one-fourth skin unit (MacKee) x-ray. MacKee and Eller conclude that there is a considerable variation of susceptibility to x-rays caused by age, location, complexion and inaccuracies of the best technique. Patients should be inspected carefully during a course of x-ray treatments for premonitory signs of reaction, for even a mild reaction may be followed occasionally by undesirable late effects.

### INDICATIONS AND LIMITATIONS

The experience gained from years of study of the effects of x-ray treatment has taught us some limitations as well as contraindications to its use. While originally the x-ray alone was employed in the treatment of many skin diseases, today we look upon x-ray as only a part of our treatment

\* Read before the Dermatology and Syphilology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



plan. Local and internal measures that are indicated are employed in conjunction with x-ray therapy. Care must be exercised not to use irritating topographic applications such as tincture of iodine and ammoniated mercury before, during or immediately following a course of x-ray treatments, because this usually causes an intensification of the x-ray effect.

X-ray is most useful in subacute and chronic conditions of the skin associated with cellular proliferation. Its action is also of definite benefit in certain types of bacterial and fungus infection of the skin and its appendages. It is definitely contraindicated in conditions associated with atrophy.

#### DISEASES IN WHICH X-RAY IS INDICATED AND CONTRAINDICATED

*Acne vulgaris*, especially the deep nodular type, lends itself well to treatment with the x-ray. Originally Witherbee and Remer<sup>13</sup> recommended the use of twelve to sixteen weekly exposures of one-fourth skin unit (MacKee) x-ray. Experiences, as the following case citation, have modified this view.

In New York I saw an actress, age twenty-four years, brunette, who two years previously had had twelve treatments of one-fourth skin unit (MacKee) x-ray at weekly intervals. She returned on account of a recurrence of the acne. We were more interested in the patches of telangiectasia and associated atrophy found on both cheeks.

As a consequence today we give a maximum of six to eight weekly exposures of one-fourth skin unit (MacKee) x-ray or a total of one and one-half to two skin units. If this amount of treatment fails to clear up the acne we resort to the ultra-violet ray in conjunction with topographic applications and measures directed to the general condition of the patient rather than risk producing permanent skin changes.

*Superficial pyogenic infections* as paronychia, furuncle, carbuncle, cellulitis, phlegmon, and erysipelas lend themselves well to x-ray treatment. It is better to use one-half to one skin unit (MacKee) x-ray in these conditions. The effect is prompt, it lessens pain, diminishes local edema, and shortens the course of infection. Fitting local and general measures should be used in conjunction with the x-ray.

*Fungus infections* of the skin respond to x-ray treatment after they have passed through the acute and subacute stages into the eczematoid ringworm stage of Fordyce. Ringworm of the scalp and nails is also most favorably influenced by the x-ray.

Recently I saw a patient who had had a great number of x-ray treatments for ringworm of the nails. The fingers of both hands presented a marked radiodermatitis consisting of telangiectasia, atrophy and pre-epitheliomatous ulceration. Evidently the threshold of tolerance had been greatly exceeded causing this unhappy complication. The social life of this patient, who is a doctor's wife, has been literally ruined. Scrupulous attention to detail and limitation of the use of x-ray within the bounds of skin toleration will eliminate this dreadful complication. Over four

thousand successful epilations for tinea capitis have been done at the Vanderbilt Clinic, New York, without the production of a single permanent alopecia. Suitable topical applications should be used in conjunction with the x-ray in treating the various fungus infections of the skin.

One of the most intractable conditions in dermatology, *psoriasis*, has certain phases in its manifestation which respond well to x-ray treatment. In fact all phases of this disease react favorably to the x-ray. Due to the tendency of this disease to recur, however, x-ray is not the method of choice in the treatment of psoriasis. When the x-ray has proved itself successful in clearing up an attack of psoriasis it is hard to persuade the patient to return to the use of topographic application of ointments in future attacks. In Doctor Fordyce's office in New York I saw a patient who had had from one to two x-ray treatments every week for one and one-half years. The patient was a man forty-five years of age, strong and sturdy, a plumber by occupation. When dressed he looked perfectly normal. But when stripped of his clothes there was an entirely different picture. Telangiectasia, sclerodermatous thickening and atrophy of the skin, and several chronic ulcerations with definite epitheliomatous change were found on his trunk, arms and legs. Apparently, with his mind intent on clearing up the psoriasis, this roentgenologist did not consider the fact that the skin has definite limits of toleration to x-ray therapy. Recently I saw a young girl twenty-two years of age who had had six months' treatment with x-ray for a psoriasis of the arms and legs. Her arms and legs now show an extensive telangiectasia with beginning atrophy in addition to several scaling patches of active psoriasis. For every recurrence of psoriasis a greater amount of x-ray is necessary to cause involution of the lesions. Therefore the risk of producing undesirable skin changes is too great to use x-ray routinely in the treatment of psoriasis. X-ray and radium can be used, however, in treating localized patches of the disease. Fractional doses of x-ray are also of benefit in treating psoriasis of the nails.

*Pigmented nevus* and *vascular nevus* usually respond to a massive well-screened dose of x-ray. *Keloid* within the first year of its appearance will do well on filtered x-ray treatment. Care must be exercised not to overstep the bounds of toleration. A patient I saw in New York who had had a linear keloid involving the arm and the proximal part of the forearm treated with x-ray, developed telangiectasia, sclerodermatous thickening and two small ulcers. The borders of the latter manifested definite epitheliomatous change. In our enthusiasm to remove an unsightly keloid we must not use x-ray beyond the point of skin tolerance.

*Mycosis fungoides* is one condition in which x-ray must be pushed to the point of producing definite skin changes in order to be of real therapeutic value. The late Doctor Fordyce has shown that combining intravenous arsphenamin with x-ray treatment greatly enhances the action of the latter. He had one patient under observation for ten years without signs of recurrence after hav-



ing used this combined treatment. This is one generalized chronic disease of the skin in which we use x-ray beyond the usual point of skin toleration.

*Eczema*, especially the chronic lichenified type, and neurodermitis respond promptly in the vast majority of cases to fractional x-ray treatment. If the underlying cause of the condition is determined and removed the result obtained is permanent. Usually not more than six treatments of one-fourth skin unit (MacKee) x-ray are necessary to produce the desired effect. Additional x-ray treatment may be used with careful attention to detail.

*Acne keloid*, multiple warts respond well to x-ray treatment. In these conditions filtered x-ray is preferred. Fewer and larger doses are indicated.

*Lupus vulgaris* and *lupus erythematosus* do not respond well to x-ray therapy. Recently MacLeod<sup>14</sup> condemned its use in *lupus vulgaris* because it is impossible to destroy lupus tissue without causing an x-ray burn followed possibly by epithelioma. Stokes<sup>15</sup> reported a case of *lupus vulgaris* we observed at the Mayo Clinic in which hundreds of doses of x-ray had been given. The cartilages and bone of the alae nasi and the septum were lost in a dry and odorless mass of cauliflower-like vegetations of epithelioma. He advises emphatically against the use of x-ray in *lupus vulgaris*. *Lupus erythematosus* produces atrophy, therefore x-ray is contraindicated.

*Keratosis senilis* and the various types of *epithelioma* of the skin respond favorably to massive doses of x-ray. One or two exposures of two to four skin units (MacKee) x-ray are usually required to produce complete involution of the malignant process. The surrounding skin must be well screened to within one-half centimeter of the borders of the lesion. About ten years ago at the Vanderbilt Clinic, New York, a patient was given three skin units (MacKee) x-ray on a superficial epithelioma of the face. As far as could be determined clinically, complete involution followed. Five years later, however, the patient returned with a little fullness at the site of the former malignancy and a biopsy was taken. Doctor Satenstein showed us the microscopic section. Although the epidermis and upper cutis were free from pathologic infiltration, there was unmistakable evidence of epithelioma in the lower cutis. The only logical explanation is that some of the malignant cells were not destroyed by the x-ray and lay inactive in the lower cutis for five years. For this reason Doctor Fordyce recommended removal of the growth by electrodesiccation and the curette before application of the x-ray to the base of these lesions.

#### CONCLUSIONS

1. X-ray is not a panacea for all skin diseases.
2. X-ray should constitute only a part of our therapeutic armamentarium for skin diseases.
3. X-ray if properly controlled is the most useful agent we possess for the treatment of diseases of the skin.
4. A positive diagnosis, plus discovery of the underlying etiology of the condition presented, if

possible should precede x-ray therapy in all dermatologic conditions.

5. Skin toleration tests to discover individual susceptibility to x-ray add a positive safeguard against undesirable reactions.

6. Patients should be inspected carefully before each x-ray treatment for premonitory signs of intolerance.

7. Dosage should be accurately controlled by scrupulous measurement of spark gap, skin distance, milliamperage, and time of exposure.

8. When using fractional dosage a total of two skin units (MacKee) x-ray should be the maximum amount of treatment used during a period of two months.

9. X-ray should not be used in treating generalized psoriasis.

10. Skin tolerance must not be regarded as a limiting criterion in treating mycosis fungoides with the x-ray.

11. Irritating topographic applications must be avoided before, during and after a course of x-ray treatment.

12. X-ray preferably should be used in conjunction with electrodesiccation and curettage in treating cutaneous malignancies.

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#### DISCUSSION

H. J. ULLMANN, M.D. (1520 Chapala Street, Santa Barbara).—I was much interested in this paper, especially from the standpoint of dosage. I believe that



if more accurate methods of measurement were employed by the average roentgenotherapist fewer untoward results would occur. Few roentgenologists would report voltage in terms of spark gap today. Eight years ago when I tested a number of machines in Chicago to determine if possible why there should be such a variation in time required with different machines to obtain the same results, I found a surprisingly large variation in voltage used, although the operators were using the same gap. Using the MacKee formula I found that if the operator of Machine D should change to Machine A and using the same gap should give the same number of milliamperes minutes, he would actually give 30 per cent more than he expected. This work was reported in the April, 1921 issue of the *American Journal of Roentgenology*, and since its publication it has become common practice for roentgenologists to report their dosage in volts rather than in "inches gap." To measure voltage by "gap" is equivalent to measuring skin target distance with a rubber band.

I believe that the dosage given for epitheliomata is too low. Doctor Wilhelm spoke of a recurrence after three units. I now give from five to fifteen units or more (unfiltered), depending on the thickness of the lesion, in one or two sittings a day or two apart and consider the results excellent. There is little or no scar.

I wish to recommend this paper to everyone using x-ray, for the warnings are very timely and much needed. Overdosage in skin therapy for nonmalignant conditions is common.

I suggest that if a case of mycosis fungoides does not respond well to unfiltered x-ray that copper filtered, high voltage radiation be tried. I have one patient referred to me by Doctor Koetter, who has had marked relief from the short-wave radiation after failure of the long. This was tried following a report in the London *Lancet* of a case successfully treated by heavily filtered radium.

✱

DOUGLASS W. MONTGOMERY, M.D. (323 Geary Street, San Francisco).—Physicians are constantly employed handling, in an intimate way, highly infective viruses, in administering strong and destructive inorganic and vegetable poisons, and in applying dangerous physical tools and agencies. Accidents in the use of these drugs and agencies are bound to occur, sometimes affecting the physician and sometimes the patient. The reaction of the public to these accidents is interesting. Physicians, for example, from the nature of their occupation, are more exposed to the virus of influenza than the rest of the population, and the death incidence among them from this cause is the highest in the community. The public, however, is not moved by this. If, however, an unfortunate result occurs in the employment of x-rays, the public may assess the physician for heavy damages, even to ruining him financially, and no thought is given to the daily risks he runs in serving the public either in this or in any other of his capacities. And yet the public demands the service. The public feels so acutely outraged by these and like accidents that legislatures, for instance, have repeatedly passed stringent laws forbidding the employment of all poisons. *Demos*, however, soon finds that the expert handling of the interdicted poisons and potent physical agents is necessary in our intricate civilization, and the laws fall into desuetude. The type of mind remains, however, and the old secular growl against the profession also remains. X-rays now seem to be particularly obnoxious to the public, and in view of this it might be a salutary exercise for any physician employing them to read over Doctor Wilhelm's paper once a day in lieu of other devotions. He might also bear in mind that the patient begging for relief from an annoying or dangerous trouble is an entirely

different creature from the same person suing for damages.

When tempted by the pleadings of a patient suffering from such a persistently recurrent disease as psoriasis, for example, one may remember Saint Paul's advice: "Be as wise as a serpent and as harmless as a dove."

✱

IRVING BANCROFT, M.D. (812 Detwiler Building, Los Angeles).—A roentgenologist once said in my presence: "I don't know a single thing about skin diseases. All I know is that a patient has a skin disease and I apply the x-ray and the disease gets well." Shortly after that my medical defense insurance premium was raised 150 per cent a year because I used an x-ray machine. So, measured by the yardstick of insurance premiums, we, as a class, are labeled as lacking in knowledge. This realization of a lack of knowledge has developed a group of small-dosage roentgenologists similar to the physician who treated a woman with x-ray every other day for over two years. Her trouble was pruritus ani, and at the end of the treatments she still had her rectal hair.

The skin unit or erythema dose, as a measure of x-ray quantity, is inaccurate, and yet it is more convenient than the R unit, which is based on the amount of rays emanating from a given amount of radium in a given time, or the H unit based on the change of color of a chemical substance. Originally a "foot" or a "cubit" was nearly as inexact. The skin unit should be more clearly defined in terms of R, which at the present time is the most definite measure which we have. Until that time comes we should remember that one skin unit is about equal to 1000 R or 5 H.

The object of x-ray skin therapy is to provoke a colloidal modification of the atoms of the cells and thereby to initiate a physiological change. Experiments have proved that rays of different wave lengths have different physiological effects. German and French authorities, especially Regund, Solomon, and Wetterer, advise the use of a filter of aluminum in all cases of superficial therapy. The reason for this is that a highly filtered ray causes less harmful epithelial modification, and the dermatitis that occasionally follows is very mild and heals quickly; much more so than a similar dermatitis caused by an unfiltered ray.

Several years ago attempts were made in my office to standardize two different self-rectifying x-ray machines, and after a fair trial it seemed that the voltmeter was not accurate because, as the current was alternating, only a part passed through the voltmeter, and that part was not regular and even. Physicists also say that a milliammeter is not accurate in a self-rectifying machine, as there is an inverse current which falsifies the reading. So, therefore, an interrupterless apparatus only should be used with the MacKee formulas.

In nevi of all kinds I have found other methods of destruction preferable and, although I agree that x-ray does not destroy lupus, I believe that filtered x-ray should be used, after curettage, as it favors fibrosis and lessens the infiltration of the tissue. In fact I have found this auxiliary character of x-rays one of its distinct advantages and, as Doctor Wilhelm says, "today we look upon x-ray as only a part of our treatment plan."

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DOCTOR WILHELM (closing).—The discussion helped to emphasize the one point that I hoped to bring out in this paper, namely, that we use *caution* in treating the skin with the x-ray.

I wish to thank the discussers individually for their discussion.

If we succeed in preventing one case of radiodermatitis this paper will not have been in vain.



## VASCULAR OCCLUSION IN DIPHThERIA \*

By GEORGE D. LYMAN, M. D.  
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VASCULAR occlusion of the limbs as a sequela of diphtheria is hardly mentioned in the textbooks, probably because of the infrequency of its occurrence. In their last edition Holt and Howland hold it a rare complication, and devote a few brief sentences to the condition. The first recorded case in America was supposedly reported by Vedder<sup>1</sup> in 1879.

## CONDITION NOT FREQUENTLY SEEN

Perhaps there were not many other recognizable cases to report, as vascular occlusion is usually a complication of the malignant types of diphtheria, those types in which the initial angina is severe and the resulting intoxication profound. In the old days, before the time of antitoxin, these patients quickly succumbed to the toxemia. It was only after the inauguration of intensive serum therapy that physicians found themselves more often faced with this condition. This modern means of combating diphtheria saved many patients who otherwise would have filled early graves; and vascular occlusion is a late complication—one of the fifth or sixth week of the infection, almost one of convalescence. This complication usually occurs in cases where the body and the toxins have waged a lengthy battle for supremacy; and signifies a struggle in which the heart and blood vessels have played a decisive rôle and lost. In these patients, just at the moment when the physician is congratulating himself that the circulatory system has won the conflict, there dramatically appear the symptoms of vascular occlusion. But if the physician is on guard he has been somewhat forewarned of the issue. If there have been cardiac symptoms he has realized the danger of embolism, and vice versa if vascular occlusion results he recalls the heart complication.

## VASCULAR OCCLUSION A DISEASE LONG KNOWN

Vascular occlusion is by no means confined to diphtheria. It is a sequela of many infectious diseases; but as a complication of any one of them it is relatively rare. Its occurrence has been known since the time of Thucydides. In the description of the plague that decimated Athens in 430 B. C., that historian relates that some recovered after the loss of their hands and feet. He does not disclose, sufficient for present conjecture, the nature of this Athenian outbreak. Consequently many medical historians have made heroic but futile efforts to identify it with one of the other of the acute infections. But inasmuch as adults were particularly susceptible to that scourge it probably was not diphtheria. Undoubtedly it belongs in the same category with the typhus epidemics that swept Europe in the Middle Ages and during the

sixteenth and seventeenth centuries, all of which were characterized by gangrene of the limbs.

## REPORTS IN THE LITERATURE

If the condition is rare as a complication of infectious diseases, it is much more uncommon in diphtheria than in any of the others. Apparently only four cases have been reported in America.

In 1904 Barraud searched the literature and collected one hundred and three cases of gangrene of the extremities in young persons and subsequently published thereon an exhaustive monograph. Of these, only twenty-nine were under fourteen years of age; nine of them had followed typhoid; five appeared after measles; and four after scarlet fever. Only two cases were complications of diphtheria. The remaining individual cases were confined to typhus, pneumonia, influenza, varicella, whooping-cough, tonsillitis, appendicitis, umbilical phlebitis, and acute gastritis.

In 1910 Rolleston<sup>2</sup> assembled eight cases not included in Barraud's statistics and added a ninth from his own files.

Rollins<sup>3</sup> in 1918, in his "Juvenile Peripheral Gangrene in Infectious Diseases," collected twenty-five cases. All were complications of diphtheria.

Leon A. Bailly<sup>4</sup> in 1920 gathered seventeen cases, adding one from his immediate experience, and made the series the basis of a paper on "Occlusion of the Arteries of the Limbs in Diphtheria." In addition to these larger groups sporadic reports have been encountered. To these this paper will add one more, the case being one that went on to occlusion and cyanosis, but not to gangrene.

Practically all the reported cases complicating diphtheria occur during the years of early or late childhood, especially between the ages of two and ten years. Apparently it has never been encountered in infants, and but rarely after puberty. This is in striking contrast to the same condition complicating other infectious diseases, especially typhoid and typhus.

From a survey of the reports vascular occlusion in diphtheria occurs more persistently in boys than in girls.

It has a predilection for the lower extremities, and is more frequent on the right side than on the left. In fifteen of Bailly's cases it occurred in the lower limbs. Five times both legs were involved. In twenty of Rollins' cases a lower limb was affected. In twenty-seven of Barraud's twenty-nine cases the occlusion attacked the lower extremity, and the same may be said of seven of Rolleston's.

## PATHOLOGIC CHANGES

As earlier indicated, occlusion in diphtheria is a late complication of the form characterized by considerable toxemia, in which there is early involvement of the principal organs, such as the heart, the liver, kidneys, nervous system, and the endocrine glands, especially the latter. The suprarenal parenchyma and the cerebral hypophysis, more particularly its intermediate portion, are par-

\* This paper received honorable mention in Clinical Prize competition.

ticularly affected. Of these the heart, blood vessels and endocrines bear the brunt of the toxemia, and the physician must be continually on the alert to support the failing circulation and avert the consequences.

#### ETIOLOGY

Clinicians are by no means agreed as to the cause of this complication, that is, whether the pathologic process is a consequence of thrombus or embolus. Many hold that it is caused by autochthonous thrombosis, due to acute arteritis. For instance, in only 10.7 per cent of Barraud's cases was there definite postmortem evidence of embolism. Bailly<sup>5</sup> produced experimental arteritis, although confined to vessels such as the aorta and carotids by the injection of large doses of diphtheria toxins.

It is also a possibility that cardiac thrombosis and emboli are influenced by a superadded infection. Some observers have suggested the possibility of a streptodiphtheria, or the connivance of a diplococcus. Various observations as to their presence in the emboli are reported. Other workers in this field have been unable to verify these findings.

The preponderance of opinion, both clinical and pathological, is on the side of an embolus—a migrating clot which proceeds pathologically about as follows: as a result of a severe initial angina, perhaps in a patient that has not received antitoxin until late, important morbid changes take place in the circulatory system. The heart becomes the seat of a myocarditis. Its walls become soft and flabby and lose their tone. As a consequence the cavities are widely dilated. The lining membrane, especially about the apex, becomes roughened and granular. At this critical stage the blood pressure, due to the toxic affect on the endocrines, falls alarmingly low. The blood itself is altered. There is an increase of polynuclear leukocytes—perhaps there are Klebs-Loeffler bacilli circulating about. At any rate it shows an increased tendency to clot. In this altered condition the blood bathes the heart cavities already greatly distended. Due to these changes and the lowered blood pressure the blood no longer circulates with its accustomed rapidity and stagnates in the ventricle. Here the greatly altered blood with its increase of polynuclear leukocytes comes in contact with the roughened and granular heart walls and a large quantity of fibroferment is liberated. Thus the blood readily coagulates and a cardiac thrombus is produced. These findings have been demonstrated at the postmortem table.

#### SYMPTOMS AND SIGNS

The clinical findings mirror the pathological. In all cases this picture is apparently the same. The patient is usually prostrated from the beginning with the symptoms of malignant diphtheria. The onset has been sudden. As a result of the toxemia the little victim is overwhelmed. The gray membranes swiftly involve the pharynx and invade the nasal fossae. The cervical lymph nodes are greatly swollen. The neck looks enormous. The child lies pale and depressed upon the bed. The urine is scanty and albuminous; the pulse is

rapid and the physician observes that the blood pressure is alarmingly low, 75 mm. or lower.

By this time the physician has probably administered serum in intensive dosage. Seven to ten days expire, the membranes disappear, the lymph nodes decrease in size. By the end of a week the throat is apparently normal. Perhaps the physician is relieved; not so the child. It lies on the bed while successive waves of toxemia sweep over it. It is too weak to move of its own volition. It is cadaverous, loses its appetite and cannot eat, vomits what it does and suffers from continuous epigastric pain.

At this critical juncture there appear the symptoms of cardiac insufficiency. The little victim's pulse is rapid, 130 to 160 per minute. At times it is abnormally slow, 50 to 60 to the minute. Often it is unequal or irregular, and the blood pressure, if taken is very low. On examination a dilatation of the heart is demonstrable and frequently, due to this extreme expansion of the ventricle, a mitral systolic murmur is heard. Sometimes there are violent paroxysms of dyspnea, during which the little patient is greatly distressed, is propped up in bed and labors for breath while the lips and finger tips become blue and cyanosed.

In the midst of all this a new symptom is noted. Suddenly, without any prodromes, the patient experiences violent pain localized in one or another extremity, a pain so exquisite that the child cries out in anguish.

If the invalid is carefully examined at this time it will be observed that immediately after the pain the affected limb presents a different appearance.

Over a considerable extent the skin will have taken on a whitish waxy tint and will be discolored in irregularly disseminated areas. The entire region will be cold and the peripheral temperature in the diseased and healthy fellow limbs will be found to show a difference of from 6 to 10 degrees centigrade. The patient will be unable to move the extremity, and the slightest movement will exaggerate the pain; reflexes disappear and if the pulsation of the arterial trunk of the affected extremity and its branches be sought, it will be found absent below a certain point corresponding to the seat of the occlusion.

One of three things now occurs. Either the patient dies very suddenly or the limb becomes progressively more painful and cyanotic in color. After a variable lapse of time the tissues shrink and a dry gangrene may develop. Perhaps an operation follows. Or the circulation reestablishes itself in the affected part; and then the color returns in the limb, it becomes warm and the sensibility comes back. These signs indicate that a supplementary circulation has been instituted sufficient to assure its nutrition. By the end of the third or fourth day the areas of cyanosis disappear, sensibility and the reflexes return; little by little the limb assumes its normal aspect. Of such a type is the case reported here.

#### CASE REPORT

Mildred and Evelyn were twins, twenty-eight months old. Late in February of 1923 they had as a playmate a little boy who was discovered to be a diph-





Fig. 1.—Shows left hand of child before and after treatment.

theria carrier. As the two children were fairly well, their mother, although notified of this discovery, took no preventive measures.

However, March 19, 1923, Evelyn was taken sick, showing a temperature of 104 degrees and a croupy cough. After two days of home remedies the temperature dropped and the child was out playing, still hoarse, still croupy, and still coughing. She did not play with her usual gusto. Her symptoms grew steadily worse up to midnight of March 28, when she developed great difficulty in breathing and a "peculiar" cough, and a physician was hastily summoned. On the spot he made a diagnosis of laryngeal diphtheria and administered sixty thousand units of antitoxin. The next day the throat cultures were found loaded with Klebs-Loeffler bacilli. In spite of twelfth-hour remedies and heroic measures the child died on the 30th of March, 1923.

Mildred, the twin sister, and the subject of this report, was taken sick a few days earlier than her sister. On March 1 she had a temperature of 103 degrees, was hoarse and developed a croupy cough. She was sick three or four days, received home remedies but no medical attention. Her health seemed good until the day of March 29, 1923, when suddenly while playing she "let out a cry" and complained of a pain in the little finger of her left hand. The mother examined it but could find no cause for her daughter's anguish. But from then on the little girl complained bitterly of sore fingers: first the little one of the left hand, then the ring finger, and finally the middle one. Thus the condition progressed until the fatal midnight of March 29, when a doctor was called to administer to Evelyn in her extremity. As Mildred was still complaining of her fingers, the physician examined them but could find nothing wrong at the time. Being suspicious of laryngeal diphtheria he took a throat culture and, although there was no temperature, nor membranes discernible, he administered ten thousand units of antitoxin. The next day the throat culture was positive for Klebs-Loeffler bacilli, and the cultures did not become negative until April 7. On April 10 the mother noted a slight discoloration of the middle finger of the left hand, and that the tip was waxy in appearance. From then on this digit kept getting more and more discolored, cold and tender. The child cried out more often with pain—could not sleep and would not eat, and was generally miserable. On April 16, 1923, she was removed to Stanford Hospital.

Physically at this time she was in good condition, with the exception of her heart. The sounds were of good quality except for a systolic murmur heard at the apex and not transferred to the axilla or back. The borders were within normal limits. The spleen was palpable below the costal margin.

The left forearm was colder to the touch than the right. Purplish colored ecchymotic areas were irregularly distributed over the skin on the dorsum of the left hand. The index and middle fingers from base of nail to well below the second joint were of a purplish blue color. The tips were white and waxy-looking. The child could not or would not move them. Sensa-

tion was present. The fingers were exquisitely tender to touch. No pulse was palpable at the wrist or below the elbow. Above in the brachial it was present. There was no edema nor swelling.

By April 21 the ecchymotic areas on the hand had disappeared. The cyanotic zones on the fingers had taken on a reddish purple hue, but there was still no pulse. The fingers could be moved and they were not so tender to touch. By May 1 the discoloration had disappeared. During her stay in the hospital the child had no fever, and the throat cultures were negative. Blood cultures were sterile; the Wassermann was negative. The x-ray of the chest was negative, so far as the heart was concerned. The urine showed a trace of albumin. The blood count was as follows: hemoglobin, 45 per cent; white blood cells, 11,200; red blood cells, 5,430,000; polynuclears, 46 per cent; lymphocytes, 49 per cent; eosinophils, 2 per cent; and transitionals, 3 per cent.

The treatment consisted in the application of heat to the affected arm and fingers. Each finger was kept wrapped in cotton and bandaged, and hot-water bottles were packed about the arm and hand. Appropriate measures were taken at the same time to stimulate the appetite and remedy the anemia.

#### COMMENT

It is interesting in this case to note that the vascular occlusion occurred during the third and fourth week, which conforms approximately with other reported cases. Although such a result is suggested in a number of the reports, this one would appear to be one of the few which did not go on to gangrene with subsequent amputation. Perhaps because there was not as much initial toxemia present.

The prognosis in these cases is usually bad, not so much on account of the complication as on account of the cause—the heart. Rolleston contends that the outcome is grave but not hopeless. Barraud's figures would seem to prove it. The mortality among 103 cases was 51.6 per cent—of the twenty-nine cases in children under fourteen years of age, thirteen died, eleven recovered, and in five children the issue was not recorded. Out of eight of Rolleston's cases four recovered and four died.

Bailey likewise holds the prognosis to be unfavorable. Out of a total of sixteen cases in which the ultimate outcome is indicated, death occurred in seven, or in 43 per cent of his series.

The result as to life may be said to depend on an early diagnosis and the early administration of heroic doses of antitoxin.

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## TUBERCULOSIS IN INFANTS AND YOUNG CHILDREN\*

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DISCUSSION by Ernst Wolff, M. D., San Francisco; Philip H. Pierson, M. D., San Francisco; Esther B. Clark, M. D., Palo Alto.

OUR ideas in regard to the resistance of the infant to tuberculous infection have changed considerably in the last few years. Reuben and Smith,<sup>1</sup> Hempelmann,<sup>2</sup> Lemaire,<sup>3</sup> McLean and Jeidell,<sup>4</sup> Krause,<sup>5</sup> Drolet,<sup>6</sup> Langer,<sup>7</sup> Wahlquist and Myers,<sup>8</sup> and Asserson,<sup>9</sup> have shown that many infants become infected with tuberculosis without developing signs of serious tuberculous disease. In these reports the mortality rates are very much higher in those series in which only hospital, or sick children were examined. As series are reported that include out-patient infants, suffering from minor ailments, or from none at all, the mortality rate very much diminishes, although the number of patients exhibiting evidence of a tuberculous infection remains relatively high.

Asserson's report, which included a study of 4003 hospital and clinic infants under two years of age, and 1656 infants of the same age, attending baby health centers, showed an incidence of tuberculous infection of 11.4 per cent in the former group and of only 3 per cent among the well babies. "The results of this study indicate that the infant's resistance to tuberculous infection is better than it was formerly believed to be; on the other hand, the infant's lack of resistance to tuberculous disease appears to be relatively low, a fact long recognized." The report also indicates that the incidence of tuberculous disease in infants is a matter of continued exposure, and that "infants who receive their infection in a more casual and less continuous way show marked resistance to tuberculous infection."

During the course of the work done under the auspices of the San Francisco Tuberculosis Association, in which tuberculin testing was done on dispensary patients, regardless of complaint, we frequently saw positive intracutaneous tests on infants and young children with no symptoms refer-

able to tuberculosis other than a history of exposure in a few instances. Most of those that it was possible to follow, developed no symptoms later. Others of course, with positive skin tests at an early age, already had symptoms, signs, or roentgenological evidence of tuberculous disease. A few of these have carried considerable disease for a period of a year or more.

During our investigation, as soon as the tuberculin tests were read and recorded as positive, a complete history was taken, with special reference to tuberculosis; a complete physical examination was done; roentgenological studies were completed, which included a fluoroscopy, and lateral and anteroposterior chest plates. With these data at hand all cases were classified—in regard to their tuberculous condition—as active disease, suspected disease, or as healed. Those with symptoms or physical signs in addition to roentgenological evidence of disease were called active; those without symptoms or signs, but with roentgenograms which might be evidence of tuberculous disease were classed as suspected; those with no signs or symptoms, and with roentgenograms which showed definite calcifications without other parenchymal involvement were classified as healed.

One hundred and fifty-two infants under one year of age were tested with a 1/10 mg. dose of Koch's old tuberculin, intracutaneously. Seven, or 4.6 per cent, reacting positively; 161 children tested between the ages of one and two gave twenty-two positive reactions, or 13.7 per cent; between the ages of two and three, 171 were tested, nineteen, or 11.1 per cent, were positive; while of those between three and four, 254 were tested, with fifty-seven, or 22.4 per cent, reacting positively. This age incidence of infection is charted in Fig. 1, together with the percentage of

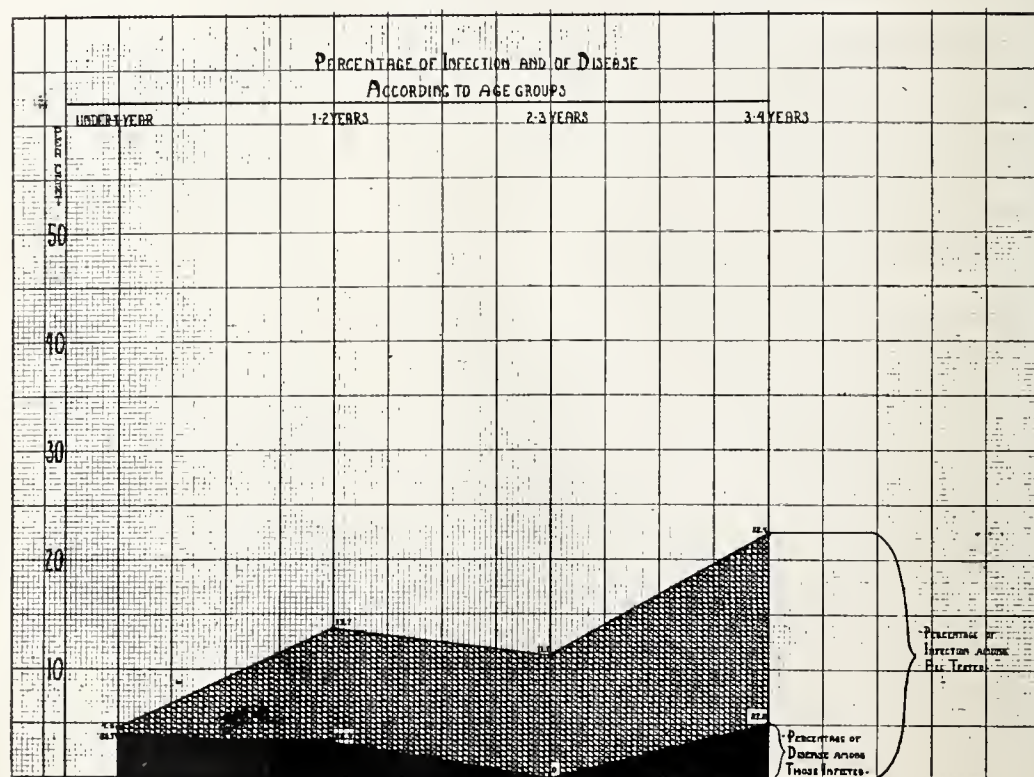


Figure 1

\* From the Department of Pediatrics, Stanford University Medical School, San Francisco.

\* Read before the Pediatrics Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.





Fig. 2.—Classification of 105 cases.

Of our 105 cases of tuberculous infection in children under four, twenty-four were classified as active, twenty-nine as suspected, forty-six as healed, and in six a classification was not possible, due to incomplete records (Fig. 2).

Most of these 105 children have been followed from three months to two and a half years. Those who have disappeared from our observation are a relatively small number, nine in all. Of these only two were thought to have been acutely ill of tuberculous disease at the time of their disappearance.

Five children, or 0.66 per cent, of the 738 tested are known to be dead, which is 4.7 per cent of the 105 known to have had a tuberculous infection; of these one was under one year of age, three were in the one to two year group, and one was between three and four years of age. All of these mortalities except one were in the group classified as active. The one exception was in the group of suspected cases, where the patient died of a sarcoma without developing marked symptoms of tuberculosis. The four other fatal cases included one of miliary tuberculosis, one of tuberculous bronchopneumonia, one of hilum node tuberculosis, and one of combined pulmonary and bone disease.

In the remaining twenty cases in the active group are included four cases of pulmonary tuberculosis, three of hilum node

active disease in each age group of the infected. These four groups made a total of 738 children under four years of age, 105 of which were positive reactors to tuberculin, an incidence of 14.2 per cent.

Of our 105 cases of tuber-

tuberculosis, two of bone disease, five of tuberculosis of the cervical lymph nodes, and three cases of pleurisy with effusion. In three the focus might have been either pulmonary or in the hilum nodes.

At the present time, then, from three months to two and one-half years after being first seen, seventeen of the twenty-four active patients are known to be living, and three have disappeared from observation. Of the seventeen known to be living, nine are completely well and symptomless, three are ill at home with symptoms of tuberculosis, and five are in hospitals for tuberculous patients.

Of the twenty-nine cases classed originally as suspected, one is dead, two are ill with symptoms of tuberculosis, three have disappeared, while twenty-three are well.

Of the forty-six cases classed as healed, one has been lost, the other forty-five were well when last seen, and have never had signs or symptoms of active tuberculous disease other than the original positive tuberculin test.

In the group of twenty-four active cases, nine, or 37.5 per cent, had definite histories of exposure in the home to tuberculosis; in the twenty-nine suspected cases, nine, or 31 per cent, were known contacts; in the forty-six cases of healed tuberculosis, ten, or about 21.8 per cent, were known to be contacts. For the total group of 105 there were twenty-nine known contacts, an incidence of 27.6 per cent.

The present condition of the patients in the classified groups is shown graphically in Fig. 3.

The following case reports were selected at

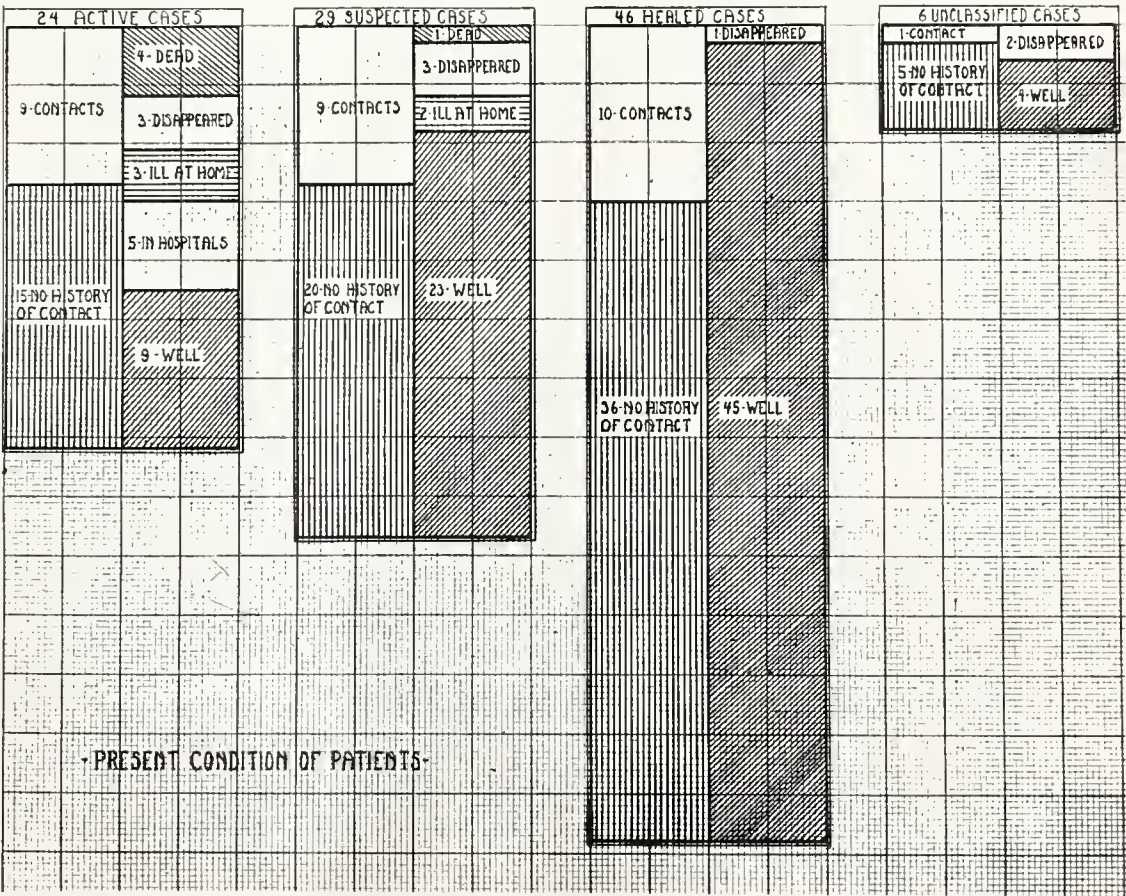


Figure 3



random from among those in which abnormal roentgen shadows could be demonstrated.

#### CASE REPORTS

**CASE 1.**—E. S., boy, age five months. Complaint: failure to gain in weight for the past six weeks. Brother was actively tuberculous and lived in intimate contact with the baby for the first four months of its life. Tuberculin test very strongly positive, 20 by 20 millimeters in diameter. Physical examination showed enlarged anterior fontanelle, spleen enlarged and palpable 3 centimeters below the costal margin. Roentgenogram showed density in upper lobe of left lung, a rounded area of density to the left of the trachea thought to be probably an enlarged gland, enlargement of the spleen, thymic enlargement. (See Fig. 4.) This was classified as active disease. Baby ran an afebrile course in the hospital and began to gain on a proper formula. Roentgenogram taken three weeks later showed thymic enlargement to have disappeared, density in left upper lobe unchanged, and the appearance of a small amount of what was probably interlobar fluid. At this time patient ran a course of fever as high as 103 degrees F., lasting for a week, and developed an intercurrent otitis and pyelitis from which it recovered. One month later, developed a typical pertussis. Roentgenogram at this time showed no changes over the previous one. Patient recovered from the pertussis, and was put on quartz-light therapy. Roentgenogram taken eight months from time of first visit showed thymus again enlarged, disappearance of interlobar fluid, and spleen of normal size. (See Fig. 5.) Child well at this time, gaining normally. Still had some cough. At age of twenty months reported well.

**CASE 2.**—D. M., boy, age ten months. No complaints. Visited the clinic because two weeks previously the mother had been diagnosed as an active case of open pulmonary



Fig. 4 (Case 1).—Boy, five months



Fig. 5 (Case 1).—Eight months later than Fig. 4



Fig. 6 (Case 3).—Girl, age three years

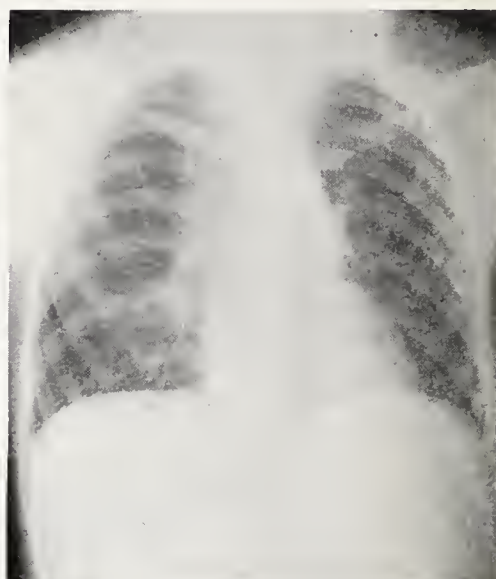


Fig. 7 (Case 3).—Two and one-half years after (Fig. 6)



Fig. 8 (Case 4).—Girl, age two and one-half years



Fig. 9 (Case 4).—One year later than Fig. 8. Note much increase in calcification, especially of solitary node in right lower lobe



tuberculosis. Tuberculin test positive. Physical examination revealed child of normal weight. Fine râles at the right base posteriorly. Roentgenograms showed lung roots increased in dimensions and density, and the presence of enlarged glands; lung fields somewhat mottled with mottling distributed along the major bronchial branches; no calcification evident. This case was classified as active, but the child has never developed any symptoms, and at the age of eighteen months is entirely well. Roentgenograms at this time show no decrease in size of glands, no calcification, but mottling somewhat less.

CASE 3.—V. M., girl, age three. No presenting symptoms. Mother died of tuberculosis two months previous to first visit of patient. Physical examination showed cervical adenopathy, moderate, but otherwise was negative. Tuberculin test was positive, with an indurated area of 18 by 22 millimeters, with a more extensive erythema. Roentgenograms showed much fuzzy and irregular density along the bronchial tree, with a patch of density in lower inner portion of right lower lobe. (See Fig. 6.) Patient was considered as actively diseased. During the period of observation of two years and six months, she developed no symptoms except those of frequent colds, and cough at times of having colds. Roentgenogram taken showed increased density along the bronchial tree as compared with previous films, with roentgenologist reporting "definite peribronchial tubercles." (See Fig. 7.)

CASE 4.—A. V., girl, age two years six months. Complaint: painful swelling of neck. Mother had died of pulmonary tuberculosis two months previously. Physical examination revealed large mass, indurated, in right posterior triangle, with the central portion red and fluctuant. Many coarse râles throughout the chest. Tuberculin was positive with an induration of 15 by 16 millimeters, and an erythema of 21 by 28 millimeters. Pus from gland obtained by aspiration showed no acid-fast bacilli, and subsequent animal inoculation was negative. Roentgenogram of chest showed heavy peribronchial adenopathy, with two or three spots of calcification in the parenchyma of the right lung, with a large one in the right lower lobe. (See Fig. 8.) This case was classified as suspected. Heliotherapy was prescribed. One year later the child was well, roentgenogram unchanged except for much increase in the calcification. (See Fig. 9.)

#### COMMENT

The number in this series of cases is, of course, much too small from which to draw any mortality statistics, but there are many of these children who give proof of the fact that infants and young children may carry tuberculous infection with few symptoms. Some of them may have considerable resistance also to rather extensive tuberculous disease. Eighty-one of our series of 105, or about 77 per cent of those known to be tuberculous, are entirely free of symptoms and well from three to thirty months after they were first seen.

Our ever increasing knowledge, then, of tuberculous infection and disease in the infant has made us hesitant about predicting the fate of those merely infected with tuberculosis. We find also that we have made mistakes in the prognosis of many suffering from considerable disease. Has part of this been due, not only to our lack of knowledge of the course that tuberculosis may run, but also to the fact that small children as well as adults are becoming more resistant to the disease than formerly? Calmette has possibly shown by his extensive researches that a certain amount of immunity may be acquired by the infant when avirulent tuberculous organisms are

taken into the body in large numbers.\* It is more than possible that this same phenomenon is going on under our very eyes in a large number of children, and in a natural way, and would explain the fact that many children become infected with tuberculosis early in life, and remain free from symptoms of tuberculous disease.

#### CONCLUSIONS

1. Tuberculous infection is fairly common in infancy and early childhood.
2. In the absence of symptoms and roentgen-ray findings these patients carry the infection usually without developing evidence of marked disease.
3. Occasionally those having marked evidence of disease may carry the disease for a considerable time with no increase of signs or symptoms.
4. Seventy-seven per cent of the children under four years of age in our series that were positive reactors to tuberculin developed no evidence of tuberculous disease.
5. The intracutaneous test and the roentgen ray are the most valuable aids in diagnosis.

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#### DISCUSSION

ERNST WOLFF, M.D. (516 Sutter Street, San Francisco).—Doctor Dickey's paper is the first valuable study to reveal the incidence of tuberculous infection in infants and young children in San Francisco. His figures are similar to the results of American and European statistics, obtained by the same technique. This striking similarity of results in localities, which

\* Greenwood has recently questioned Calmette's statistical analysis (*British Medical Journal*, May 12, 1928, p. 793).

differ widely in social, racial and climatic conditions indicates that the mechanism of so-called "casual" exposure is the deciding one that brings about the positive tuberculin reaction in infants and runabouts.

Concerning the related histories in which the favorable course of active or suspected tuberculosis is described it is interesting to note that in three out of four cases the infection ceased with the death of the tuberculous mother or the removal of the tuberculous contact case from the home to the hospital. In the fourth case the active tuberculous mother very likely was separated from the baby after the first examination. On the other hand, it is our experience that active lung infiltrations in older children are often observed when they are constantly superinfected by immediate contact. There may be some direct relation between the healing of the tuberculous process and the ceasing of the source of infection. This relation may count for the favorable course in the related cases, without discussing the question of increasing resistance to tuberculosis in mankind.

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PHILIP H. PIERSON, M. D. (490 Post Street, San Francisco).—This paper of Doctor Dickey shows a study of a group of children, some contact cases and some where no contact was evident. Tuberculous infection may be present without any manifestations, subjectively or objectively. Tuberculous disease may also be present without objective or subjective signs, and even when present are not specific enough directly to guide us either in diagnosis or prognosis. This very fact should make us more careful to view children from the broadest possible standpoint, and make use of the two most valuable aids—roentgenography and the tuberculin test.

The work of Valtis in Calmette's laboratory has shown that certain forms of tubercle bacilli not only pass through a Chamberlin filter, but also through the placenta, giving no localizing symptoms of tuberculous disease, nevertheless setting up a protective reaction in the tracheobronchial lymph nodes. If this work continues to be verified, it may revise our ideas as to antenatal infection.

This source of early infection together with small exogenous infections, where the general health of the individual receives special attention, probably accounts for the fact that many of our children respond very well and the disease becomes arrested and cured more often than we originally thought. A case of healed general miliary tuberculosis that I reported a few years ago, and others that are on record, show the wealth of resistance which may be summoned to the aid of many children.

In conclusion let us carry this thoughtful point of view in considering the children who come to us and recognize that tuberculosis, if considered from this broad point of view and carefully treated, may have a very hopeful outlook and that infected children may recover, leaving no evidence of a previous tuberculous infection.

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ESTHER B. CLARK, M. D. (300 Hamilton Avenue, Palo Alto).—Doctor Dickey has made a splendid contribution to the study of tuberculosis in children. The incidence of tuberculosis as revealed by the tuberculin intracutaneous test is undoubtedly higher in young children than is generally believed. A knowledge of the probable fate of a young child or infant who is known to be harboring tubercle bacilli is of very great prognostic importance. Such knowledge can only be gained by observation over long periods of time of children who have early in their lives been found to be infected. Doctor Dickey's observations, while covering a relatively short period of time, would indicate that the outlook for the infected child who is free from symptoms is usually good.

Clinically it is often extremely difficult or impossible to decide whether or not a child presenting any

of several symptoms or signs and a positive tuberculin and a chest plate with indecisive markings, is actually suffering from tuberculosis or not. In children with such obscure and indefinite findings a negative tuberculin gives more real information and is of more significance than is a positive tuberculin.

## COCCIDIOIDAL GRANULOMA \*

By H. P. JACOBSON, M. D.

Los Angeles

DISCUSSION by Roy W. Hammack, M. D., Los Angeles; W. T. Cummins, M. D., San Francisco; Norman Epstein, M. D., San Francisco.

THE results of some observations on the efficacy of colloidal copper in the treatment of coccidioidal granuloma were presented at the fifty-sixth annual session.<sup>1</sup> Since the reading of that paper, which was based upon the treatment of two patients, I have had the opportunity of further observation of one of the two originally reported and, in addition, have studied the effects of colloidal copper upon four others. Through experimental work upon guinea-pigs, I have attempted to ascertain the methods and factors concerned in the transmission of this infection. The results I shall present to you after a brief outline of the histories of the four recent patients. Following are the case histories:

### CASE REPORTS

CASE 1.—E. M., male, thirty-nine years of age, negro, cement worker, born in Texas and resident for the past four years in Los Angeles County, was admitted to the Los Angeles Hospital, April 5, 1927, and discharged August 3, 1927.

He complained upon admission of weakness, cough, night sweats, loss of weight, pain in the neck and left shoulder, and swelling below the left clavicle.

Present trouble started three months before with a "cold" characterized by fever, coughing, night sweats and weakness. Home treatment was ineffective; after a month he experienced pain in the proximal end of the left clavicle, followed in a few days by a noticeable swelling which has increased in size until the present time.

Examination showed a patient acutely ill and extremely weak. Temperature and pulse curves were of a septic character. Cough persistent and expectoration profuse. Examination revealed several variously sized fluctuating tumor masses, the most conspicuous of which were situated below the left clavicle and sternal regions.

X-ray study showed a mediastinal mass not distinctive of its origin.

In the pus aspirated from an abscess the coccidioides immitis was found, culturally and microscopically.

Treatment, colloidal copper. After the fourth injection improvement began and continued progressively until August 3, 1927, when voluntarily he left the hospital, much improved but not completely cured. Unfortunately I do not know his present physical condition. It is significant that, in spite of his critical condition upon entering the hospital, he was able to leave in the

\* Read before the Dermatology and Syphilology Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

\* From the Department of Dermatology, Los Angeles General Hospital.



course of about four months in an apparently good condition.

**CASE 2.**—M. P., male, thirty-one years of age, laborer, born in Mexico. For the past four years has lived in Los Angeles County, but never in the San Joaquin Valley. Admitted to the Los Angeles General Hospital, May 4, 1927. Discharged September 10, 1927, apparently well.

He complained at the time of admission of a painful swelling of the right wrist and hand and a discharging painful swelling of the left ankle and leg.

This present illness began two months prior to the date of admission and followed an injury to his wrist. Several days later the wrist became painful and swelled progressively. A month after the injury the patient noticed a small pimple on the inner surface of the left foot which enlarged until it ruptured and discharged pus. Meanwhile the ankle and foot swelled and pimples and lumps, which appeared on the surface, softened and broke, discharging liquid pus. The feet became painful and incapacitated him for work.

Examination made several days after admission to the hospital and after the laboratory diagnosis (microscopic and cultural) of coccidioides had been established revealed a swollen wrist and edema of the hand. On palpation the swelling gave a boggy, gummatous feeling, slightly fluctuant and fairly tender to the touch. The left ankle and foot, twice the normal size, presented, especially on the external aspect, an irregular gummatous mass, dusky red in color. Numerous sinuses exuded a tenacious seropurulent material.

X-ray of the wrist disclosed destruction of the cartilage and moderate bone destruction of the right carpal bone.

Deep intramuscular injection of colloidal copper was given every four days. Improvement began after about the fourth injection; the discharge lessened and the pain and tenderness gradually subsided. On September 10, 1927, he was discharged from the hospital in an apparently good condition. His present status I do not know, as he returned to Mexico to live.

**CASE 3.**—A. H., male, thirty years of age, Filipino, laborer, entered the Los Angeles General Hospital, November 3, 1927, and died in the institution January 30, 1928.

He complained of painful, swollen and stiff joints, weakness, cough and expectoration, night sweats, loss of weight, pain in the sternal region, right shoulder blade, over the right clavicle, and left hip; and of numerous tumor masses on different parts of the body.

**Course and Onset.**—Four months prior to admission, while a resident in the San Joaquin Valley, he contracted a "cold" accompanied by cough and expectoration, night sweats, vomiting, and pain in the region of the sternum. After indifferent home remedies for two weeks his symptoms subsided, but after an interval of one month, returned in a much aggravated form. At this time the patient noticed a small swelling in the right supraclavicular region, and soon after several similar swellings on different parts of the body. He finally became incapacitated and sought medical advice. He was admitted as an orthopedic patient provisionally, but after the diagnosis of coccidioides was established by laboratory methods he was transferred to my service in the dermatological department. (Patient stated that in August, 1927, he ate some rabbit which had some "lumps," and when opened looked cheesy. About one month later he began to feel sick.)

Examination revealed a young man obviously ill with pain and tenderness in most of the large joints of the body. Change of position for examination was very painful. A number of subcutaneous, elastic and fluctuant tumor masses situated on different parts of the body were found, varying in size from a small cherry to a medium-sized orange. The supraclavicular

and sternal swellings were the largest, and caused him a good deal of discomfort. During his stay at the hospital the smaller lesions increased in size and new ones developed. In the pus aspirated coccidioides immitis in its typical form was shown microscopically, and was grown culturally.

X-ray examination revealed a destructive process of the inferior angle of the right scapula and marked infiltration in the right perihilar region.

**Course and Treatment.**—Treatment with colloidal copper was commenced immediately, December 13, 1927. The dosage technique and intervals were of the usual type. Large abscesses were opened, drained, and irrigated with one-half of one per cent of copper sulphate. Despite all this care and treatment he continued to develop new lesions, and showed no evidence of general improvement. The patient had a septic pulse and temperature until the end. Because of this condition, on January 24, 1928, he was given 26.6 cc. of a one per cent gentian violet solution intravenously, to which he reacted moderately. Forty-eight hours later, on the 26th of January, 1928, during another intravenous gentian violet administration by the intern, his respirations became so labored, his pulse so markedly accelerated and weak, that the injection was discontinued. About forty-eight hours later the patient died.

**Autopsy Report.**—Filipino, male. Body poorly nourished but not particularly emaciated; apparently about thirty years of age. Rigor absent. Liver moderate in size. Pupils equal, regular 5 mm. The left side of the neck, below the angle of the jaw, presented a fluctuant swelling about 6 cm. in diameter, which contained about 30 cc. of thick, yellowish green pus. The subcutaneous tissue walling off the abscess was lined with shaggy, yellowish pyogenic membrane. Several of the posterior cervical lymph nodes in the immediate vicinity were caseous on section, somewhat resembling tuberculosis. Right clavicle was a draining sinus 1 cm. in diameter, leading to a subcutaneous abscess pocket 5 cm. in diameter, resembling the one on the left side of the neck above described. The right side of the back and lateral chest wall presented a diffused fluctuant swelling extending from the upper border of the scapula down to the inferior angle and then round to the anterior axillary line and to the lower border of the ribs. On incision this swelling was found to be a large subcutaneous abscess cavity similar to the one on the left side of the neck, and containing about two liters of similar pus. The inferior angle of the scapula and the right lateral border showed extensive destruction, being very friable and spongy. A similar subcutaneous abscess, containing about 300 cc., was located beneath the skin over the left anterior chest, extending from about the third rib to the sixth, and from the anterior axillary line to the right border of the sternum. A draining sinus over the fourth rib in the midclavicular line was present. The fourth rib in the midclavicular line was very friable and completely eroded in places. The crest of the left ilium showed extensive destruction, and beneath the skin over the prominence of the left hip and the crest of the ilium was another large abscess cavity containing about 700 cc. of pus. No evidence of involvement of the hip-joint. Small draining sinuses were present about the right elbow and right wrist.

**Pleural cavities:** Numerous fibrous adhesions about the apices of each lung. The left contained about 600 cc. of straw-colored fluid. The right about a liter of straw-colored fluid.

**Mediastinal and peribronchial lymph nodes** considerably enlarged, forming in all a mass about 7 cm. in size. Considerable anthracosis and extensive caseation was present. The process somewhat resembled tuberculosis, but had a more purulent character.

**Lungs:** Extensive miliary involvement throughout all the lobes, most marked in the right hilar region. These nodules were discrete, averaged about 3 mm. in diameter, and were grayish white. They were not so



rounded as tubercles, but appeared to be made up of numerous pin-point nodules.

Heart: Size normal. Myocardium quite flabby, probably postmortem. No other gross pathology observed.

Spleen slightly enlarged. Scattered throughout were occasional yellowish caseous nodules varying from minute to 4 mm.

Liver: Size normal. Gall bladder negative. Appearing beneath the capsule were considerable numbers of pin-point, graying specks; and on section of parenchyma revealed considerable numbers of discrete, pin-point gray-white nodules. Otherwise it was reddish brown.

Pancreas negative.

Retroperitoneal lymph nodes: Quite a few were somewhat enlarged, up to 1 cm., and showed considerable caseation.

Suprarenals negative.

Kidneys normal size. Slight cloudy swelling. No evidence of chronic nephritis. Only a very few pin-head yellowish gray nodules found.

Urinary bladder and prostate negative.

Gastro-intestinal tract negative. Several of the mesenteric lymph nodes showed some caseous areas.

Large abscess behind the peritoneum in the left iliac fossa, similar to those already described, and containing about 400 cc. of thick yellowish green pus.

Brain and cranial cavity: Careful examination showed a yellowish green caseous area about 4 mm. in size within the right optic thalamus. No other gross pathology found.

Sodium hydroxid preparations of the pus from the various large abscesses showed numerous spherical yeast-like bodies ranging from the size of a red blood cell to about 30 microns in diameter. They had a double contour membrane, and the larger ones especially were packed with spores. Typical appearance of *coccidioides immitis*.

*Cause of Death.*—Generalized coccidioidal granulomatosis.

CASE 4.—G. K., male, forty-eight years of age, Greek, was referred by the out-patient department of the Los Angeles General Hospital, March 2, 1928, for treatment of coccidioidal granuloma.

His present trouble, consisting of swelling and discharging sinuses on the dorsa of both hands, commenced eighteen months ago while residing in Bakersfield, California, with a small area of redness and swelling immediately above the joint of the left index finger. After treating it with home remedies unsuccessfully for about two months he went to San Bernardino where a physician incised the swelling and obtained some pus. He remained under his care for seventy days, but the lesions refused to heal in spite of all sorts of local treatment.

About that time the dorsum of the other hand began to swell and became painful. He then became alarmed and came to Los Angeles where the physician consulted made a diagnosis of syphilis. After administering four salvarsan injections without any benefit, he advised the patient that an operation would be necessary, and because of financial lack was advised to go to the county hospital for further treatment. He was admitted to the Los Angeles General Hospital on February 9, 1928.

When first seen he presented irregularly shaped, fluctuating tumor masses on the dorsa of both hands. The mass on the right hand was located above the carpometacarpal joint of the left index finger, dusky red in color. In the center there was present a thick crust, the removal of which exposed a puckered, discharging sinus. The lesion on the left hand was much larger in size than that of the right, of the same consistency and color as the right, and had two discharging, puckered sinuses. He complained of marked rheumatoid pains extending from the hands to the shoulders. Glands in the axilla were somewhat enlarged.

X-ray examination of the right hand revealed a rarefied area at the distal extremity of the third meta-

carpal bone with a break in the cortex. X-ray of the left hand revealed the same condition at the distal extremity of the second metacarpal bone with distinct breaking down of the walls. Radiological examination of the chest showed a diffuse haziness of the pulmonary detail throughout, particularly in the perihilar regions and toward the bases. The involvement of the right side was sufficiently marked to suggest bronchiectasis, with an inflammatory process.

*Course and Treatment.*—This patient was put under treatment with colloidal copper March 3, 1928. He began to show improvement, both general and local, after the third injection. While he is still under treatment the improvement to date has been so marked that it is only a question of a short time when I feel that I will be able to discharge him completely. The drainage has completely stopped, the sinuses have dried up, and there is present no crusting at this time. I have informed the patient that he may return to work if he so chooses.

#### COMMENTS

The four cases of coccidioidal granuloma here reported make a total of ninety-two cases of this disease recorded in the literature to date. A cursory examination of the data contained in the above reports reveals the outstanding fact that, out of a total of four patients suffering from this fatal malady, three, or 75 per cent, have apparently survived the infection so far, and, to the best of my knowledge and belief, are in fairly good physical condition. One of the victims of this series, suffering from the fulminating type of the infection succumbed to it, in spite of the most energetic treatment with colloidal copper intravenously and gentian violet intramuscularly. From the day of entrance to the last minute of his existence the disease process manifested a downward tendency, and nothing seemed to change its course. What effect the gentian violet had in this connection is problematical, though it is quite obvious that its administration brought about an alarming situation and the injection had to be stopped uncompleted. An unusually virulent strain of the *coccidioides immitis*, probably combined with a reduction of his immunity mechanism, afforded the organism full sway in its work of destruction. This impression is strengthened by the rapidity and the luxuriance with which the *coccidioides immitis* grew on our artificial culture medium, requiring only seven days for optimum and extremely rich growth in bouillon, and by postmortem autopsy findings, as will be noted elsewhere in this communication.

Of the three surviving victims treated, one has returned to Mexico and is untraceable; another, I am reliably informed, is sufficiently well to be up and about and doing some work. The third member of this series is still under treatment and progressing favorably. The lesions have apparently involuted and there is no present evidence of activity. It is premature to predict the final results in these cases. Colloidal copper has a definite favorable effect upon the disease process. Whether this favorable effect will prove to be of a permanent nature, or whether the *coccidioides immitis* will ultimately develop a tolerance and resistance to the copper is as yet unknown. It is not unlikely that the apparent favorable effect of



copper depends not so much upon its lethal action upon the parasite, as upon its stimulative effect upon the immunity forces of the economy. If this is so, the question of optimum dosage and interval of time between dosage would be a rather important factor. Whatever its mode of action, however, and until something better is discovered to take its place, colloidal copper should occupy a dominant position in our fight against this disease. I wish to emphasize that the favorable results obtained depend apparently upon its cumulative effects. For that reason it must be administered over long periods of time and at regular intervals. If its administration is stopped prematurely the disease process becomes reactivated and the clinical signs and symptoms of the infection return, though probably not so acutely as in the first instance. This fact was brought home to me by a relapse in one of my patients after a rest period of four months free from treatment. While he presented a number of large-sized lesions, he was not so acutely ill as when admitted to the hospital the first time. The organisms obtained from one of the lesions at this time grew very slowly and sparsely in artificial media, while during his first residence at the hospital they grew rapidly and luxuriantly. He is at present under treatment with colloidal copper and responding very favorably. It is quite possible that experience will ultimately teach us that we shall have to be as persistent and painstaking in the treatment of this disease as we are in the treatment of syphilis which requires years of medication with some of the heavy metals to keep the disease process in check. Of course that is not an ideal method. Unless some more effective therapeutic agent is discovered, a vaccine or an antitoxin perhaps, this is the only effective weapon at our command. When used persistently and methodically it is capable of modifying or checking the disease process in a majority of cases.

#### TRANSMISSIBILITY OF COCCIDIOIDES

It is a curious fact that a thorough search of the literature dealing with the subject of granuloma coccidioides fails to reveal a single instance of direct transmission of the infection from person to person or from animal to animal. This curious fact appears especially paradoxical when viewed in the light of the extreme virulency of the causative organism and the malignancy of the disease process under discussion. It would seem that a parasite which is capable of thriving so luxuriantly in animal tissue as does the coccidioides immitis would find it a fairly easy task to migrate from animal environment to animal environment, if the only prerequisite for its successful lodgment would be accessibility and immediate contact. Disregarding for the moment the factor of lowered local resistance, such as a break in the continuity of tissue through traumatism or otherwise, which might afford a favorable place for the growth and multiplication of the parasites, there still remain the majority of patients suffering from this disease who have not afforded the invader such a place of lowered resistance but who

must have fallen victims of this malady because of some other and hitherto unsuspected factor concerned in successful transmission.

#### EXPERIMENTAL INVESTIGATION

Because of the above unaccounted for facts and because I desired to ascertain if possible the mode of transmission of this infection, I experimented on this phase of the problem, in the following way:

A group of four male guinea-pigs were inoculated intraperitoneally with a virulent bouillon culture of coccidioides immitis and developed the disease in typical form. These infected animals, which we shall designate for the purpose of convenience as Group A, were then placed in a single cage.

In another separate cage were placed four other healthy male guinea-pigs (Group B) who were not permitted to come in direct contact with the infected group, but were fed upon the remnants of food that the infected animals left, after handling, in their cage for at least twenty-four hours. This experiment was carried on daily for a period of about three months. None of the healthy pigs contracted the disease in that period of time.

In a third cage were placed four other healthy pigs (Group C) who received clean, uninfected food, but who were exposed to the infection through direct contact with Group A. The infected group were transferred daily for twenty hours out of every twenty-four hours to the cage occupied by Group C, permitting and encouraging close contact and interplay. None of the animals in Group C contracted the disease in the course of three months.

#### COMMENTS

These experimental results, coupled with the apparent nontransmissibility of the disease directly from patient to patient under normal condition, lead me to believe that there must be an intermediary host, probably an insect, concerned in the transmission of this infection. I have been especially strengthened in this belief, after questioning my patients closely by having elicited the information, almost invariably, that there was an insignificant little papule, or edematous congestion on some exposed part of the body, immediately preceding the major symptoms for which medical relief was sought. It is my belief that these insignificant initial lesions are caused by the sting of an insect which carries the coccidioides immitis and deposits them there *in situ* in an especially adaptive form for growth and multiplication with the resultant lesions.

#### SUMMARY AND CONCLUSIONS

1. Four additional cases of coccidioidial granuloma are here reported, making a total of ninety-two cases recorded in the literature to date.
2. An additional year of observation on the efficacy of colloidal copper in the treatment of this disease leads me to believe that this is the best remedy at our disposal today for the treatment of systemic coccidioides.
3. Based upon clinical observation and close questioning of patients and upon inability to trans-



mit the disease in guinea-pigs through immediate and direct contact, or through contaminated food and air. I believe that there is an intermediary host, probably an insect involved, in the transmission of this infection. Whether this hypothesis is well founded or not time will tell. I hope that someone competent in the field of insect knowledge will undertake a study of this phase of the problem in the immediate future. If this communication serves to hasten such an investigation and discovery I shall feel that it has accomplished a constructive and useful purpose.

1016 South Alvarado Street.

#### REFERENCE

1. Jacobson, H. P.: Granuloma Coccidioides—Apparently Successfully Treated with Colloidal Copper, *California and Western Medicine*, September 1927, pages 360-64.

#### DISCUSSION

ROY W. HAMMACK, M. D. (1003 Pacific Mutual Building, Los Angeles).—I am not familiar with colloidal copper and its pharmacology. However, I feel that any agent that gives promise of help is justifiable in a progressive case of coccidioidal infection. Doctor Jacobson's results are promising. Certainly we have no other therapeutic agent capable of affecting the course of systemic coccidioidal disease.

The manner of transmission of this infection is still unknown. The disease is of sufficient importance to justify experimental investigation of this point. Doctor Jacobson's experiments are interesting, but do not prove the impossibility of contact infection under natural conditions. My own belief has been that infection occurs through the respiratory tract, and is based on the constant finding, in my own experience at least, of pulmonary or peribronchial gland lesions at autopsy.

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W. T. CUMMINS, M. D., (Southern Pacific Hospital, San Francisco).—The clinical resemblance of coccidioidal granuloma to tuberculosis, in their acute military and chronic osseous manifestations with the more fatal aspect of the former, justifies the consideration of its importance as an entity and of the importance of their differentiation. The diagnosis of coccidioidal disease is readily made by the examination of smears and cultures of the pus, with or without guinea-pig inoculation.

Insects or rodents may be responsible for the transmission of the disease. It is possible that the soil in certain localities may be polluted or that infection may be resident in vegetation, as suggested by the development of a coccidioidal lesion on the finger of a walnut picker. It is the writer's opinion that there are two atri of infection in the human being, namely, the respiratory tract and the skin, the former determining the development of the acute military type and the latter the chronic type. There do not appear to be fortunately any instances of case-to-case, human infection.

The various therapeutic agents which have been employed include crystal and gentian violet, neosalvarsan, iodids, vaccines, and the x-ray. With the exception of early amputation in a few cases in which the lesions appeared to be confined to a distal part, up to the present time no means have been found to stay the ravages of the disease. As clinicians and pathologists we should be interested in any promising therapeutic agent, such as the colloidal copper to which Doctor Jacobson calls our attention in words of optimism. A study of a larger number of human cases and further experimental study will be necessary of course to determine the efficiency of colloidal copper. The writer also is undertaking this work. An entomological investigation is a very pertinent suggestion.

It is likely that coccidioidal disease is more common than many physicians believe and that many cases have passed on with a diagnosis of tuberculosis in consequence of insufficient pathological examinations. The reports of cases from various parts of the United States and from Brazil, together with reported infection in the bovine race, attest to the fact that the disease is becoming disseminated. We shall await with much interest further reports of Doctor Jacobson's investigations.

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NORMAN EPSTEIN, M. D. (384 Post Street, San Francisco).—Estimation of the value of any therapeutic agent in the treatment of coccidioidal granuloma is hampered somewhat by the lack of clinical material. Certainly the results obtained with the use of colloidal copper are striking. No other measure apparently has any effect upon the progress of a generalized coccidioidal infection, death coming on within a very few weeks or months. Cases of coccidioides should be given a thorough trial with this method of treatment.

The essayist points out the similarity between a systemic coccidioides granuloma and tuberculosis. A case of coccidioides of the left knee, reported by Pruett and Wayson (*J. A. M. A.*, 1923, Vol. 81), was apparently cured by amputation. This patient has been attending the University of California skin clinic for the past few months. It was of interest that his sputum contained numerous tubercle bacilli. This was an instance of coccidioides and tuberculosis existing in the same patient. He is still quite active.

Doctor Jacobson's experiments in an attempt to solve the problem of transmissibility of the disease are open to certain criticisms. The data as to the condition of the infected guinea-pigs is incomplete. Were the discharges from these animals studied for the presence of coccidioides immitis? Were cultures made from the remnants of the food left by the infected animals? The negative results obtained in these experiments do not seem sufficient to settle the point in question. Scientific research of this kind, particularly by a busy clinician, deserves the highest praise from all of us.

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DOCTOR JACOBSON (closing).—In closing, I wish to express appreciation for the open-minded and constructive criticism of the discussers. We are agreed that granuloma coccidioides is a sufficiently prevalent disease entity to merit serious study.

I do not question the possibility of the respiratory tract being a portal of entry for this infection under certain conditions, but incline to the belief that in the majority of instances the disease is transmitted by the sting of an insect, feeding either on contaminated soil, vegetation, or infected rodents. This view is dependent upon the frequency of involvement of the exposed portions of the body, and upon the fact that coccidioides usually affects the poor, whose homes and occupational environment are often contaminated with insects and rodents. This belief is strengthened by my inability to transmit the infection experimentally from guinea-pig to guinea-pig under conditions outlined in the above article. As to the condition of the infected pigs inquired into by one of the discussers, I may state that these pigs were all autopsied and found to harbor the infection.

From the standpoint of therapeutics nothing has thus far been brought forward which offers the slightest promise of relief in the systemic type of the disease. It is not claimed that colloidal copper is capable of bringing about a complete cure in all cases of this infection; it has arrested the disease process in 80 per cent of the patients thus treated. I wish to emphasize that the ultimate solution of the problem is not to be found in colloidal copper exclusively. A biological treatment of this condition in conjunction with colloidal copper is at present being investigated with apparently encouraging results.



## SAFETY FACTORS IN SPINAL ANESTHESIA \*

By O. LEE SCHATTENBURG, M. D.  
Honolulu, T. H.

TO J. Leonard Corning of New York is usually given the credit of being the first to apply the principles of spinal anesthesia. In 1888 he injected cocaine into the extradural space for the relief of symptoms in four cases of spinal disease. In 1899 August Bier of Bonn used the same principle and first conducted regional anesthesia by using the same drug in a similar fashion. Like many other new discoveries in medical arts, it was soon tried by the profession, but one by one physicians became discouraged and dropped the method because of serious and fatal complications to this procedure; the toxicity of cocaine and lack of refinement of technique were responsible. In 1903 Fournneau discovered the less toxic stavain, and this was soon used instead of cocaine. Numerous further refinements have been accomplished after many years of costly experimentation until we have now reduced the disadvantages and risks of this form of anesthesia to a minimal degree.

Numerous reports of large series of spinal anesthetics are being made from surgical clinics here and abroad. Each series shows a higher degree of safety to the patient than other forms of major anesthesia. Spinal anesthesia is apparently on the increase. Yet each writer invariably notes a few casualties, and remarks about some of the untoward or dangerous sequelae to this form of anesthesia. Babcock<sup>1</sup> states that from the depression of the respiration and the great fall of blood pressure which it causes, it has the largest potential danger. He even states that "in the hypotension of shock, hemorrhage, toxemia, or asthenia, while the skillful associated use of adrenalized intravenous injections may reduce its dangers, it remains unsafe for general use."

We are not here decrying the use of spinal anesthesia because of its dangers; on the contrary, in reasonably skillful hands the risk from this form of anesthesia should be very slight indeed. Yet while there are accepted real or potential dangers to this method, it is the purpose of this paper to point out these dangers and to offer suggestions for combating them.

## PHYSIOLOGIC ACTION

To interpret the unusual happenings during an operation under spinal anesthesia necessitates an understanding of the physiologic background.

Since the spinal cord is surrounded by a fluid medium it is obvious that when drugs of anesthetizing property are injected into this fluid, there will result a local area of such influence. Hence the sensory, sympathetic and motor nerves which come in contact with the anesthetizing solution promptly absorb it and as promptly lose their power of conductivity. Anesthesia, sympathetic and motor paralysis follow in the segments corresponding to the segment represented at the point of injection. The spinal cord itself is little affected.

Within a few moments after injection the patient begins to note a loss of sensation in the

lower extremities, followed in succession by motor weakness, and at times by an absolute motor paralysis if the anesthesia is carried that far. The sensory nerves are first affected and their conductivity much more interfered with than those of motor origin; when weak or insufficient drugs are used anesthesia can be established without interference with motor function. Tactile sensation is also preserved even after anesthesia and motor paralysis.

After the extremities have become paralyzed the abdominal muscles are similarly affected; the abdomen loses its normal contour and becomes more flat. The abdominal muscles cease to partake of the function of breathing.

To visualize what is happening in the meantime necessitates attention to the abdominal and thoracic nervous system. Recall that the sympathetic nervous system has communication with the spinal cord by sympathetic bundles which travel with the roots and later branch away and are then designated as rami communicantes. These sympathetic fibers proceed to the abdominal organs via several ganglia and are largely distributed to the blood vessels of the abdomen and thorax; they are vasoconstrictor fibers and give to the circulation that quality known as tonicity. The sympathetic system has a further function of being the motor accelerator of the thoracic organs, while in the abdomen the same system has a motor depressor function. Quite apart from the sympathetic system is the vagus nerve with its extensive distribution to the thorax and abdomen. Its impulses for activity are directly opposed to those of the sympathetic, since it has a depressor action in the thorax while it supplies the motor accelerator impulses to the organs below the diaphragm.

When the anesthetic solution interrupts the conductivity of spinal roots, it is obvious that the sympathetic fibers carried there will also be deadened. That means that the sympathetic control to the abdomen and thorax will be lost, while the vagus control comes more prominently in relief. Clinically we see several things as a result of this. First there is a sudden and tremendous drop in blood pressure; the splanchnic vessels having lost their tonicity dilate and become a reservoir for a large part of the blood in circulation. Peripheral blood gravitates to the dependent portions, and if we observe closely we note that there is a pallor of the uppermost part of the body while lividity can be noted dependently. In extreme cases the radials become pulseless to the touch and may not even record with the sphygmomanometer. If the patient has the head elevated or is in a sitting position, he begins to note giddiness and may follow on to syncope or coma simply because the cerebral blood has flowed into the splanchnics; the volume of the blood cannot be suddenly increased, hence peripheral circulation must suffer, and this is particularly true in the brain, where blood vessels do not have the support of firm surrounding structures as they have in other parts of the body. The degree of this circulatory disturbance is in proportion to the extent to which the sympathetic

\* Read before the Honolulu County Medical Society, March 2, 1928.



connections with the spinal cord are cut off. These fibers supplying the splanchnic area usually emerge from the cord from about the second thoracic to the first lumbar segments, hence it follows that the circulatory disturbance will be less the lower the puncture is made.

What happens to the *pulse rate* we should be able to prophesy. The accelerator stimuli in the thorax being removed, the vagus acts and the pulse rate remains the same or falls even below the usual normal. The heart is actually beating easier since it has no volume of peripheral blood against which it must exert its force. That is why patients with cardiac symptoms do particularly well during the interim of anesthesia.

The *respirations* are likewise slowed down for the same reason as is the pulse. They are usually easier and freer; former dyspnea of circulatory origin frequently is entirely replaced by unlabored shallow breathing.

The vagus, supplying motor fibers to the abdominal contents, has a chance to display motor stimuli there in the absence of the sympathetic control. The intestines contract and frequently the rectal sphincter gives way and allows an escape of intestinal gases and fecal material if the intestines have not previously been emptied. This is of decided advantage in abdominal operations, and is sometimes made use of therapeutically in the treatment of ileus. The stomach is also excited to greater motor activity, and hence we see frequent nausea and sometimes vomiting a few minutes after the anesthesia has been administered.

The vasomotor shock encountered is not met with in other forms of anesthesia. While most authors have noted this reaction there is an inclination to overlook it as a thing of little gravity or concern. It is obvious that an alteration of so vital a function as the vasomotor tone offers a potential if not a real hazard.

Respiration may be still further and more seriously affected in spinal anesthesia. The amount of disturbance is again dependent upon the height reached by the anesthetizing fluids. If the lower lumbar segments alone are anesthetized there may be nothing more than the cessation of the respiratory movements of the abdominal muscles. The patient breathes slowly and shallowly, but does not suffer, since the diaphragm and thoracic movements carry on the respiratory act without difficulty. But if the anesthesia is carried to higher levels, then the chest muscles become paralyzed and distinct respiratory difficulties are encountered. If the anesthesia is carried to the level of the fourth cervical, then the phrenics are paralyzed as well and asphyxia promptly follows. Only efficient artificial respiratory methods will keep the patient alive, and these must be continued until the anesthesia is passed. Danger of respiratory paralysis probably offers the most serious menace to this form of anesthesia; it is probably responsible for the largest percentage of casualties.

The *functions* of the *skin* are little modified by the anesthetic so long as the vasomotor paraly-

sis is prevented. With a drop in blood pressure there are noted a blanching of the skin and a profuse outpouring of sweat.

*Uterine contractions* are not abolished, but are usually lessened in intensity but not in frequency. The uterus contracts after delivery as rapidly as with other forms of anesthesia.

*Hemorrhage* is less with spinal anesthesia than with other forms. This is sometimes held as an argument against its use. The usually lessened blood pressure produces a partial ischemia during the operation, and with the restoration of blood pressure the tissues again regain their normal circulation. It is argued that this will promote postoperative hemorrhage. In obstetrical work this fact can be utilized to advantage, since oxytocics will keep the uterus contracted after delivery; and the net loss of blood is actually less than with other forms of anesthesia.

The duration of the anesthesia is dependent upon the quantity of anesthetizing drug used. The maximum effect of the drug is reached within fifteen to twenty minutes after injection after which there is a gradual recession, the upper levels returning to normal sensation first. The average dose gives anesthesia lasting from one to one and one-half hours.

#### SELECTION OF DRUG AND PATIENT

*Choice of Drug.*—Many drugs have been used for this type of anesthesia. In recent times the number has narrowed down to three or four. Cocain, stovain, tropacocain and novocain are those most commonly used. J. Ralston Wells<sup>2</sup> uses an especially prepared anhydrous cocain. He states that it affects only the sensory nerves, and when introduced into the spinal fluid interrupts the conductivity of the posterior roots and leaves the anterior roots unaffected. He states further that the entire body, including the head, can be safely rendered insensible to pain. He, however, also acknowledges that 50 per cent of patients were nauseated or vomited and that abrupt declines in blood pressure were frequent. These facts would speak for sympathetic paralysis. The fact that it does not affect the motor nerves would argue against its use where muscular relaxation is desired. Stovain is a powerful anesthetic and deeply paralyzes the motor nerves; it is likewise admittedly the most toxic, most actively hemolytic and the strongest protoplasmic poison. Its use is restricted to those who have thoroughly familiarized themselves with its toxicity through long handling. Tropacocain is less active as an anesthetic. Novocain is the drug of choice in most clinics. It is nonhemolytic, is less toxic and can be used in large doses with reasonable safety. We have used "Neocain" (Rachi-Neocaine Corbiere), a highly refined novocain manufactured by Corbiere and Lionnet Laboratories, Paris. In our experience it has shown a low degree of toxicity, uniform results and convenience for hospital or office work.

*Dosage.*—We have used the above drug in ampoules of 0.10 and 0.12 grams (1½ and 2 grains), depending upon the size of the patient. No untoward results have been noted which could be



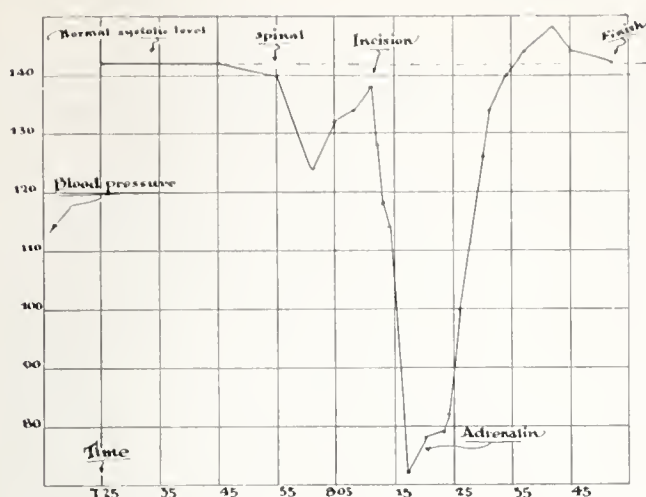


Fig. 1. Spinal Anesthesia without Ephedrin.—Inguinal hernia repair. Male, age fifty-eight, Portuguese. Typical curve showing vasomotor collapse after spinal anesthesia. Note very abrupt drop of systolic pressure to 72. Patient complained of weakness, vertigo, heat and nausea. Just before adrenalin was given, the radials were pulseless. Ephedrin would undoubtedly have prevented this distressing complication. (Note Fig. 2.)

attributed to the size of the dose. We have not used it in children for reasons noted below.

**Choice of Patient.**—*Hypotension* is universally considered a contraindication to spinal anesthesia; it is undoubtedly the major one. A systolic pressure of 110 is probably a safe minimum. Pulse pressure reading should also be considered; thus a patient with a systolic pressure of 130 but a diastolic reading of only 60, suggests lack of resistance. Those patients suffering from hypotension due to shock should be treated for shock before spinal anesthesia is attempted. *Obesity*, especially in those of stocky frame and short, thick neck, gives added peril to any form of anesthesia including spinal administration. *Children* make poor subjects for spinal anesthesia because of the difficulty in technique and their inability to cooperate after anesthesia has been established. *Deformity of the spinal column* may offer a mechanical difficulty. *Extremely nervous or hysterical* patients may prove a source of worry even after anesthesia has been established because of their inability or refusal to cooperate. Marked *cardiac interference* such as comes from pericarditis, advanced myocarditis, mediastinal tumors, cardiac displacements or pleuritic effusions, are poor subjects. Likewise those with noticeable *diaphragmatic interference* such as is found in extensive ascites, large intra-abdominal tumors or extensive pleuritic effusions, are also poor risks. *Convulsions* such as are found in tetanus, eclampsia or even hysterical convulsions, call for other forms of anesthesia, at least until spinal anesthesia can be established.

#### VARIOUS SITUATIONS TO AVOID

**Insufficient Anesthesia.**—This is not a serious circumstance. It may be due to insufficient dosage, but more often to a failure to introduce the drug into the subarachnoid space; occasionally some of the drug is lost through the point of needle puncture. A second injection is not wise; it is better

to supplement the anesthesia obtained with inhalation methods.

**Breaking the Needle.**—This is a rare accident; it may be obviated by proper choice of patient who will cooperate. Platinum needles are more flexible than steel needles.

**Circulatory Depression.**—This we have observed in cases where measures were not used to prevent its happening. We do not agree with most authors that a vasomotor collapse during an operation is a harmless situation. Reasoning in terms of physiology and of surgical experience it is reasonable to conclude that any interference with so vital a function as vasomotor tone offers a potential menace to the patient's safety. It has been our observation that vasomotor collapse introduces a train of symptoms such as profuse perspiration, faintness, nausea and vomiting, air hunger and anxiety on the part of the patient, and usually also the operator. In those cases in which we have been able to sustain the normal systolic level we have not encountered these symptoms. Various authors have attempted to do this by repeated injections of adrenalin or the giving of a continuous intravenous saline-adrenalin infusion. Ockerbald and Dillon<sup>3</sup> of Kansas City first suggested the use of ephedrin for this purpose. They gave the drug when the blood pressure had dropped 10 per cent, and noted favorable results. We have used the drug in a small series of cases and find that its effect is much more lasting than adrenalin, that the drug itself produces no untoward symptoms, and when given at the time of spinal injection, will maintain the systolic level throughout a long operation and thus eliminate entirely this universal source of danger which accompanies spinal anesthesia. In those cases where the drug was not used at the time of spinal injection and an abrupt drop of blood pressure was noted, we have been able to demonstrate the supportive effect of the drug within a few minutes after injection. We feel that blood pressure readings at two to five-minute intervals will give the best index of the patient's condition and should be done routinely during spinal anesthesia. We have used doses of 0.1 grams of ephedrin sulphate put up in sterile ampoules. These prove most effective when given (subcutaneously) at the time of spinal injection.

**Respiratory Depression.**—In our small series of cases we have not encountered this complication except the mild air hunger noted when blood pressure had dropped to low ebb. It is the observation from most clinics that those who proved casualties during the operation under spinal anesthesia did so because of the gravity of the surgical condition, or because of respiratory failure. To guard against respiratory depression calls for close attention to several details of this mode of anesthesia.

#### TECHNIQUE IN PREPARATORY TREATMENT AND INJECTION

**Preliminary preparation** includes the administration of a narcotic before operation. Most operators still adhere to the use of scopolamin in

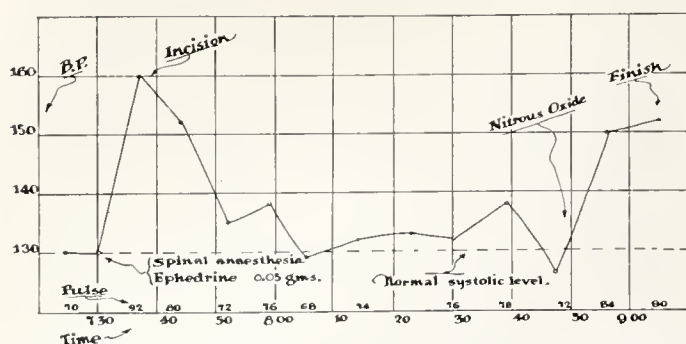


Fig. 2. Spinal Anesthesia with Ephedrin.—Ureterolithotomy. Japanese, female, age forty. Here 0.05 grams. Ephedrin was given at time of spinal anesthesia. Note how systolic pressure level was kept above normal throughout operation. Nitrous oxid inhalations supplemented spinal anesthesia during last ten minutes. Patient was perfectly comfortable throughout.

conjunction with morphin. We are under the impression that there are a fairly large number of patients who do not show the desired effect after a dose of scopolamin; they show motor excitation rather than a lowering of motor threshold impulses. We have used morphin-atropin combination with better satisfaction. The morphin depresses respiration, but the atropin is a respiratory stimulant and also lessens the secretions of the throat and helps thus to keep the air passages free. We have seen no advantage in giving it in divided doses; a single hypodermic dose one-half hour before operation has been our method. We also feel that there is some value in letting a patient face so important an event as a major operation with some food in his stomach. It does not seem rational to rob a patient of that stimulus which most American people get from their breakfast coffee or tea. For the purpose of bolstering up the patient's morale as well as for the unquestionable value of coffee as a respiratory and cardiac stimulant, we routinely give coffee or tea without milk one and one-half hours before operation, regardless of the type of anesthesia we have chosen. It does not interfere with the anesthetic, is definitely supportive, and certainly increases the feeling of well-being for the patient. *Point of injection* is not to be selected without recalling the dangers to be encountered when the thoracic and cervical segments become anesthetized. We have called attention to the fact that the spinal cord itself is little influenced by the anesthetizing solutions; hence the old supposition that respiratory paralysis was due to the drug reaching the vital centers in the medulla does not hold true. We feel that respiratory paralysis is occasioned by a succession of muscles of respiration being thrown out of function by the anesthetizing drug, and when finally the level of anesthesia is high enough to involve the phrenics coming from the fourth cervical region, respiratory paralysis becomes complete. It follows, then, that injections should be made low enough to avoid anesthetizing these higher levels. We have confined our operative work under this form of anesthesia to the abdomen, pelvis, rectum and lower extremities, and have encountered no respiratory difficulties of moment. In doing this work we have not gone higher than the twelfth thoracic region. The *amount of fluid withdrawn* has a definite influence

on the level to which the anesthetizing fluid will rise above the point of injection. Reasoning in terms of physiology again, we have not conceded the *rationale* of withdrawing more fluid than is necessary to dissolve the drug. We usually withdraw 2 to 3 cc. of the fluid and again replace it after the drug has been dissolved. This tends to keep the cerebrospinal fluid pressure at its self-adapted level. We can see only danger in the practice of withdrawing excess fluids, thereby creating an area of negative pressure which allows anesthetizing solutions to soar to dangerously high levels after injection and thus court respiratory difficulties. The *pressure of injected fluids* also is worthy of attention. Some authors feel that they can control the level of anesthetic influence by the amount of pressure they apply to the fluids as they are introduced into the subarachnoid space. Since the cerebrospinal fluid pressure is not the same in each person, and since the variability of pressure exerted by non-mechanical means is subject to wide ranges, we feel that this practice carries with it some risks. We have followed the practice of injecting fluids very slowly in an attempt to establish a regional zone of block at the point of injection, and not to send currents and eddies of novocain solution through distant regions of the subarachnoid space. The *position of the patient* is of importance. Novocain is *very* quickly absorbed. We make it a rule to put the patient into a Trendelenburg position immediately after the spinal injection; they are kept with the head lowered for twenty-four hours after the operation. Labat<sup>4</sup> emphasizes the importance of this procedure. Immediately the question comes up whether the novocain does not flow toward the cervical region and thus paralyze higher levels of the cord. Labat has demonstrated that it does not; repeated withdrawals of fluid above the point of injection failed to reveal any trace of novocain. Contrary to all former notions we feel that the Trendelenburg position is the most logical one, and have encountered no difficulties in using it routinely. In general it may be stated, that to avoid respiratory complications one needs only to guard against applying the anesthetic solutions to those areas where they can interrupt the function of the muscles of respiration. It need hardly be stated that if there should develop a cessation of respiration, diligent and thorough artificial respiratory methods must be resorted to until such time as the anesthetic has worn off.

#### SUMMARY

The technique of spinal anesthetics has been developed to a high state of refinement and offers less risk than other forms of anesthesia for *surgical work below the diaphragm*. An understanding of the physiological background and a close attention to details of procedure should allow the operator of less extensive experience to utilize this form of anesthesia to a life-saving advantage. The maintenance of normal blood-pressure level by the use of ephedrin and avoidance of respira-



tory difficulties by keeping the anesthetizing drugs below the thoracic levels, should materially increase the safety of the patient.

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### CARBON MONOXID POISONING\*

By ROBERT T. LEGGE, M. D.  
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DISCUSSION by Morton R. Gibbons, M.D., San Francisco; William C. Hassler, M.D., San Francisco; Alex. M. Lesem, M.D., San Diego.

CARBON MONOXID is the most widespread and important toxic agent of modern civilization, preëminently greater than classic plumbism, on account of its multitude of applications in industry. The significance of this hazard warrants an intense interest of the medical profession and the general public on account of the incidence of morbidity and mortality from the use of illuminating or heating gas for domestic purposes and the deadliness of exhausts from automobiles and other gas engines.

#### SOURCES OF MODERN DANGER

The very general use of automobiles and other gasoline-burning engines whose exhausts contain 7 per cent of carbon monoxid, and the consequent vitiation of atmosphere in garages, traffic tunnels, and congested thoroughfares, has given public health and industrial hygienists much concern. A recent average of 141 tests made by United States Public Health chemists in city streets at peak hours of traffic showed a contamination of 0.8 in 10,000 parts of air, while in 102 tests made in twenty-seven garages taken in fourteen different cities the average carbon monoxid content was 2.1 parts in 10,000. One of the greatest dangers to life is encountered in warming up an engine in the small, closed garage; a hazardous act that should be given universal publicity. Coroner reports annually record the increased fatalities as a result of idling a running motor in a garage. It has been estimated that a motor will discharge two feet of carbon monoxid every minute, so that in twenty minutes the atmosphere would be concentrated enough to kill a dog by asphyxiation.

From an industrial hygienist's view, the amount of carbon monoxid should not be more than one part in 10,000 parts of air where workers are employed. Every industrial physician and employer should be familiar with the approximate amount of carbon monoxid eliminated in the special processes of manufacturing at his plant.

\* Read before the Industrial Medicine and Surgery Section of the California Medical Association at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.

Whenever carbon-containing fuels are burned, such as coal, gasoline, oil or charcoal, without sufficient oxygen completely to oxidize the fuel, carbon monoxid is liberated. The various industrial processes, whether accomplished by furnaces of all kinds, explosions, blasting, gas works, heating, and oil-distilling plants, furnish many cases of poisoning from this colorless, tasteless, and odorless gas.

#### DIAGNOSIS

The diagnosis of carbon monoxid poisoning rests mainly on a history of possible exposure and the presence of carbon monoxid in the blood either before or after death. At autopsy, when evidence is observed of the preservation of the body from decomposition—the cherry-red color of the organs, tissues, and blood, and the fluidity of the latter—there is no question of the diagnosis, CO poisoning. It is important to note that the greatest changes in the tissues found at post-mortem are those of extensive fatty degeneration of the heart, kidney, walls of blood vessels, and other tissues. Minute hemorrhages throughout the brain are common. This one poisonous feature of carbon monoxid, *i. e.* the rapid fatty degeneration of organs, may have some bearing on the increase in and explanation of the mortality statistics of heart disease.

Every industrial precaution to detect carbon monoxid should be studied and observed. Normally the gas is odorless, except when mixed with other gases as in the case of common illuminating gas, which contains 30 per cent CO. In mines canary birds or mice are used to detect dangerous atmospheres. These animals are twenty times more susceptible than man. A bird will show signs of distress when exposed for one hour to 0.1 per cent of CO.

The Bureau of Mines has developed a detector which will give immediate positive results with carbon monoxid in the air in concentration of .07 per cent or more. This is known as hoolamite or the activated iodine pentiodid indicator, perfected by Teague, and a proven instrument of great value in mine rescue work and in testing plants where this hazard prevails.

Sayers and Yant of the United States Bureau of Mines have developed a quick and accurate method for the quantitative determination of carbon monoxid in the blood and air by the pyro-tannic acid test. It is of great value in making a positive diagnosis in suspected cases. Normal diluted blood that has been shaken with an equal volume of one per cent tannic acid produces a gray suspension; whereas blood containing carbon monoxid remains carmin red. A color index is made by treating dilutions of varying strengths of blood with tannic acid. A sample of unknown blood prepared in similar strength could be readily matched with these corresponding standards, and the percentage of carbon monoxid ascertained.

The symptoms of carbon monoxid may be divided into two stages. In the first stage there is a feeling of tightness across the forehead, dizziness, frontal and basal headache, smarting of the eyes, lack of proper muscular coördination, nau-

sea or vomiting, with increased pulse and respiration. In concentrated atmospheres, the victim, due to rapid poisoning, may develop syncope at once, without any of the early symptoms. Exposure of a pregnant woman to carbon monoxid may cause the death of the fetus in utero, with subsequent miscarriage.

In the second stage the symptoms are characterized by loss of muscular control, especially of the sphincters, loss of reflexes, low blood pressure, coma usually with intermittent convulsions, shallow and irregular breathing, and finally cessation of respiration. In general the predominant symptoms depend upon the percentage of blood saturation. It has been shown that strenuous exercise in a high temperature and humidity cause more rapid combination of carbon monoxid with hemoglobin than when the subject remains at rest.

Physiologically the tissues of the body derive their oxygen from the oxyhemoglobin of the red blood cells. Carbon monoxid has an affinity for hemoglobin three hundred times greater than oxygen. It is for this reason that when the oxyhemoglobin molecule becomes dissociated from carbon monoxid the tissues no longer are nourished by oxygen and asphyxiation results. The damage that is done to the brain and other organs is directly the result of oxygen privation. When 60 to 80 per cent of the red cells are saturated, death usually ensues. The sequelae of a severe gassing of CO are pneumonia, blindness, neurones, muscular irritability, and mental instability that may be permanent. Secondary effects are sometimes delayed for days after apparent recovery, and these may be permanent as in cases of deranged mental and nerve conditions. When coma is present after twenty-four hours the prognosis is unfavorable.

#### RESCUE METHODS

The first important duty in mines, gas works, blast furnaces, domestic and other industrial gas asphyxiations, is rescue. Only oxygen helmets and not ordinary army gas masks should be used by the rescuers to transport the victims to a safe place in the open. Mine rescue teams and firemen are regularly trained for such emergencies. Immediate artificial respiration by the prone pressure method must be instituted, and the inhalation of oxygen given continuously until evidence of asphyxiation is relieved.

Recently, after the researches of Henderson and Haggard of Yale, it was observed that carbon dioxid is a powerful respiratory stimulant tending, when mixed with oxygen, in the proportion of 1 in 20, to induce deep, full, breathing which rapidly displaces the deadly carbon monoxid from the blood. The mixed gases are administered by means of an inhalator, an instrument of great superiority. This piece of apparatus should constitute a necessary piece of equipment in every hospital, emergency station, ambulance, fire department, coal mine, and industrial plant where carbon monoxid is a hazard. Another new remedy

for carbon monoxid poisoning has recently been developed by German chemists, and is now reputed as being used with extraordinary success. This drug is known as lobelin, an alkaloid from an American plant known as lobelia inflata. It is administered intravenously as a powerful respiratory stimulant producing rapid results, and is said to be successful after oxygen has failed. This valuable drug now obtainable in ampoule form should be in every physician's emergency outfit.

As the successful recovery from carbon monoxid poison depends upon the early elimination of the poison from the blood, it is therefore absolutely imperative to increase the rate and depth of the respiration by the administration of pure oxygen or the 5 per cent carbon dioxid oxygen mixture, which mixture hastens the elimination of carbon monoxid five times faster than does normal air.

University of California.

#### DISCUSSION

MORTON R. GIBBONS, M. D. (350 Post Street, San Francisco).—Doctor Legge's paper is so complete that it is hardly pertinent to discuss it from a technical standpoint.

CO poisoning is a growing menace, with the increasing possibilities appearing in industry.

Education would seem to be the essential thing now, education of the people to the dangers. However, this phase of the subject presents conflicting thoughts. Every newspaper in the land advertises the danger of the gas stove and the closed garage door. The frequency of accidents from the closed garage door-open automobile exhaust complex suggests the possibility that some cases verge upon the gas-stove variety of suicide.

That physicians are alive to the possibilities is shown by the fact that more than fifty cases were reported to the Industrial Accident Commission in the last year as CO poisoning, and about one-half that number presented no vestige of such poisoning.

CO poisoning has been the claim in death cases in several far-fetched instances.

In one such case the deceased was seized with some form of heart failure, yet the claim was made of CO poisoning. He was cranking the motor of a lawn mower in the open air. There was no evidence produced that the motor ever started.

Doctor Legge's paper is timely. More education is necessary. It is necessary even to educate the friends of the would-be victim, so that the victim may be forestalled.

✱

WILLIAM C. HASSLER, M. D. (1085 Mission Street, San Francisco).—Doctor Legge's paper has scientifically presented to us the dangers that come from the generation of carbon monoxid in industry. To the administrator of public health the generation of this gas has a special significance, particularly when it comes to the matter of its generation in the sweat shops, factories, and manufacturing plants, where the amount of carbon monoxid liberated into the air is insufficient to cause immediate poisoning, yet the quantities, because of poorly ventilated apparatus as well as poorly ventilated work rooms, creates a condition that gradually destroys the red blood cells and brings about those



degenerative changes in heart, kidneys and walls of the blood vessels, of which Doctor Leggc speaks, lowering efficiency and resistance and undoubtedly causing a form of chronic invalidism which may be one of the basic causes for the high death rate from heart and kidney diseases among the workers in these places.

Carbon monoxid is a serious factor in the housing of people in large cities. Cooking, eating and sleeping in one room with unventilated gas stoves has been the cause of thirty-one deaths out of one hundred and eighteen credited to carbon monoxid poisoning in San Francisco from January to December of 1927. Eighty-seven were attributed to suicide, but again no positive evidence exists that any of these deaths were suicide. The defective rubber tubing connecting gas plates and gas jets, as well as the lack of proper outlets to flues or the open air from gas stoves, cannot be wholly guarded against.

It behooves every health officer to enforce rigidly the housing laws and compel those erecting apartments and transforming the old residences into one and two-room places for housing of families, to see that every kitchen is supplied with a flue to carry off the product of combustion from the gas stoves and to eliminate altogether the gas plate with rubber tube connection.

✽

ALEX M. LESEM, M. D. (739 Fourth Street, San Diego).—In discussing this paper I wish to state that during the year 1925 our local community experienced a number of cases of carbon monoxid poisoning which were classified as distinctly separate from suicidal attempts.

I believe that the American Gas Association through experimentation in its laboratory has established the fact that carbon monoxid poisoning caused by gas appliances burning natural gas, artificial gas, or mixed gas is due to incomplete combustion. Gas appliances which are designed to burn natural gas do not satisfactorily burn artificial or mixed gases, so a good deal depends upon the intelligent installation of the proper gas appliances.

During the first six months of 1925 forty-three cases of carbon monoxid poisoning which resulted in death were reported to the State Board of Health. Many cases resulted from moving appliances from localities where natural gas was burned to other cities where artificial gas was employed. Another factor proved to be the purchase of worn-out appliances from second-hand stores, together with faulty installation and without municipal inspection.

The third factor is the installation of gas appliances which have never been inspected or approved by the American Gas Association; which are sold for much less money than approved appliances; and which are taken home and installed by the purchaser without proper ventilation.

I wish to limit my discussion to gas appliances responsible for incomplete combustion. I believe that the solution for this particular cause of accidents lies in the education of the community along the lines of proper use and installation of gas appliances.

I believe that legislative bodies in every community should assume responsibility for prevention of such accidents and should require that all piping and gas appliances be installed under the most rigid and competent inspection.

I believe that all physicians interested in the preventive phase of carbon monoxid poisoning should be highly in favor of a state-wide legislation which would educate the consumer and prevent haphazard installations of these appliances which have proved so dangerous to human lives.

## SOME OBSERVATIONS ON THE ANEMIAS\*

By ROBERT POLLOCK, M. D.

San Diego

DISCUSSION by Rachel L. Ash, M.D., San Francisco; J. M. McCullough, M.D., Crockett; Willard J. Stone, M.D., Pasadena.

THAT anemia of the severer grades is seemingly on the increase in this country, is evidenced by the increase of activity in combating it. Official vital statistics do not accurately record the deaths from anemia, partly because the disease with which the anemia is associated usually gets the credit for the death, and partly because of the unfortunate nomenclature in the anemias.

Any marked deviation from normal blood is sooner or later registered on all the functions and tissues of the body; hence anemia of marked degree is always of vital interest to the clinician. The vast amount of research done on anemia during the past year or two warrants a critical analysis of this material. I am attempting to bring forward only such points as may be termed controversial in order by discussion to help toward a better understanding. I find here a subject wherein etiology, diagnosis, treatment and prognosis all furnish abundant material for speculation and diversity of opinion. However, scientific truth is an ever changing, constantly shifting entity, and the last word has never been said on any subject.

### CLASSIFICATION

An adequate working classification of the anemias is the following:

1. Anemias due to hemorrhage: ulcer, hemorrhoids, nephritis, urologic conditions, cancer and casualty.
2. Anemias due to hemolysis from toxins, known or unknown, such as malaria, sepsis, chemical bodies, hemolytic jaundice, some cases of pernicious anemia.
3. Anemias due to disease or defective function of the blood making tissues, such as the aplastic anemias, some cases of pernicious anemia.

So-called pernicious anemia is probably most often due to hemolysis from unknown toxins, although some of these cases are probably true aplastic anemias. The aplastic cases are as a rule rapidly fatal and occur before middle age.

Usually when hemolysis is taking place we have an increase of the urobilinogen in the urine and a yellowing of the skin.

Most of the discussion of the past year has centered about the so-called pernicious anemia, chiefly on account of the renewal of interest in its dietetic treatment. Here is an anemia showing a marked degree of hemolysis, accompanied by evidence of increased regeneration of cells, such as the appearance of nucleated red cells and megaloblasts. The red cells show many irregularities in form with a comparative increase in their size over those in other anemias as evidenced by their cell volume. This is accountable for the high color index in this anemia. To rely upon the color index in the matter of differential diagnosis between a

\* Read before the Southern California Medical Association meeting at Los Angeles, November 25-26, 1927.

primary and secondary anemia seems futile. This division into primary and secondary anemias I look upon as of purely academic interest, and of no practical purpose.

The many appliances used to determine hemoglobin percentage depending upon the eyes' ability to match color tones, the variations in technique in making blood counts, all tend to minimize the value of the color index in borderline cases. The general condition of the blood can best be told by a close study of individual cells as to size, shape and other abnormalities; and the differential diagnosis between the anemias should be determined largely upon the clinical symptoms, the physical examination and the history.

Since the passing of chlorosis, which is rarely discussed in the literature of today, pernicious anemia is the only so-called primary anemia demanding discussion and since we admit that we do not know the cause of it, is not the use of the word "primary" rather an arbitrary distinction suggestive of our ignorance? Certainly in every case of anemia we should search exhaustively to find a cause before labeling it a primary anemia.

Let us admit that disease, like life itself, does not exist *de novo*, but has a causative factor which it is the function of science to bring to light. Patients with severe anemia have quietly expired while we were still debating the question whether their anemia was primary or secondary. I feel that medical nomenclature could well dispense with such words as primary, essential and idiopathic when used as a cloak for our ignorance; the chief purpose served by such an adjective as "pernicious" is to strike terror into the layman's heart.

In our classification of the anemias, pernicious anemia falls in line as an anemia due to hemolysis from as yet unknown toxins. The present tendency is also to attribute to the disease a definite hereditary tendency. Undoubtedly some of the unmanageable cases of "pernicious anemia" that do not respond well to any treatment are cases of true aplastic anemia.

The unknown toxins in pernicious anemia are being assiduously sought in connection with bacterial strains and protozoal and other parasites of the intestinal tract; and it is here that a certain similarity between sprue and pernicious anemia has been dwelt upon. It would seem to me, however, that the rather characteristic gastro-intestinal picture in sprue ought not to be confounded with the symptoms accompanying the achlorhydria of anemia. Neither the achylia nor any other of the outstanding associations of pernicious anemia seem to account for the anemia. Both the achylia and the degenerative changes in the spinal cord at times occur before the typical blood picture of advanced anemia is present; but these are probably caused by certain toxins at work in the system rather than being either the cause or the result of the anemia.

At all events we are in no position to accept the final word on this point. It is of interest that among the most outstanding pathologic changes

found after death from pernicious anemia, are these degenerative changes in the nervous system. Similar changes, however, are also found in diabetes, pellagra, leukemia and other diseases.

Dr. Robert Preble, whom I consider a high authority and excellent teacher, speaking of pernicious anemia, says "that the anemia should be recognized as only one part of a comprehensive entity in which the digestive system, the nervous system, and the endocrine system are also involved."

#### TREATMENT (AFTER WALES, BARKER AND OTHERS)

1. Preventive.
  - (a) Heredity.
  - (b) Early diagnosis.
  - (c) Oral and general hygiene.
  - (d) Early removal of known foci of infection or source of toxemia.
2. Symptomatic.
  - A. To decrease hemolysis.
    - (a) By radiation.
    - (b) By splenectomy.
  - B. To supply new blood and to promote regeneration of blood.
    - (a) By transfusion.
    - (b) By drugs.
    - (c) By diet.

#### PREVENTIVE TREATMENT

Preventive treatment always appeals to me, and I like to think of an *early diagnosis* as a part of preventive treatment, although it sounds a bit paradoxical. Nothing is surer, however than that the detection of an anemia when the blood is only 20 to 25 per cent below normal gives the physician a great advantage, and I believe that all anemias of this grade call for careful treatment.

Many conditions which lead to severe anemia should arouse our suspicion by such symptoms as dyspnea, weakness, numbness of the extremities and gastro-intestinal complaints long before marked changes in the blood picture have appeared.

The question of *heredity* is being given more attention recently; although we can do little with it in the way of treatment except to make careful blood examinations. The annual or semi-annual physical check-up so broadly advocated today should include a blood count and usually a blood Wassermann.

*Oral and General Hygiene.*—The dentist checks more carefully upon the prevention of trouble in the mouth than physicians do with the rest of the body. General hygiene is being splendidly taught in our public schools today.

*Early removal* of all *foci of infection* appeals to most of us, especially those of the surgical persuasion. Just at present the gall bladder seems to be bearing the brunt of the attack, while the intestine with its twenty feet of mystery is suspected of originating many toxins. Intensive study of intestinal protozoa has been stimulated because of their known tendency to produce hemorrhages and achlorhydria.

#### SYMPTOMATIC TREATMENT

The agents used to *decrease hemolysis* seem to me to be of questionable value in arresting severe anemias. Radiation has proven of some value in



splenic anemia, and splenectomy of no permanent value in any anemia.

To supply new blood and produce regeneration of the blood I think that we have in repeated blood transfusion, with small amounts of carefully matched blood, a remedy of unquestionable value.

Drugs play rather a secondary part in the treatment of anemias, although arsenic intelligently used will often stimulate the blood-forming tissues. Where achlorhydria is present the use of HCl is indicated, and it is given usually in much larger doses in anemia than in other achylous conditions.

At present the treatment by dietetic measures is being powerfully stimulated. Ever since Minot and Murphy published their first article on special feeding in pernicious anemia, the literature has been teeming with articles on the dietetic treatment of anemia. The revival of the use of gland foods, liver, kidney and pancreas, and the building around them a definite system of diet made up chiefly of these organs in liberal amounts—200 to 300 grams daily with the free use of muscle meats and large amounts of fresh vegetables and fruits—has produced such strikingly good results that it has suddenly become the accepted treatment for all severe anemias. Spleen and marrow substances are also used as in the past, but at present liver is easily the favorite, and we can well afford to express our resourcefulness in devising attractive ways of serving it to the none too vigorous appetites of our anemic patients.

Just what principle in liver is so efficacious has not as yet been brought out, and the theory that vitamin A deficiency in the diet, for a long time continued, will cause severe anemia is not as yet definitely proven, and Doctor Minot himself does not favor it. However, for the time being the dietetic treatment has the call in the treatment of anemia and we find transfusion at times an invaluable aid.

In conclusion let us think of anemia as a grave condition that should be diagnosed early and carefully watched. Let us think of all anemias as probably secondary to some condition which it is our duty to uncover and correct. Let us try to feel that no anemia no matter how labeled, is necessarily beyond treatment, and while applying such therapeutic measures as we possess, let us continue to search assiduously for an underlying cause. As special diets are proving to be of marked value in their treatment, it is reasonable to suspect that some dietary deficiency, possibly a vitamin, may be a causative factor in the production of some anemias. As diet has not as yet restored the stomach's chemistry the free use of HCl should still be continued. Outside of diet and HCl, arsenic and intelligently applied transfusion are our best helps.

LATER STATISTICS

Since the above was written, through the courtesy of Dr. W. P. Shepard of the Metropolitan Life Insurance Company's office in San Francisco, I have secured the following statistics taken from

the twenty-fifth annual report of the Federal Bureau of the Census:

Total deaths from anemia in 1923 were 5867 or 6.0 per 100,000 population; in 1924 were 6167 or 6.2 per 100,000 population.

Total deaths from pernicious anemia in 1923 were 5169 or 5.3 per 100,000 population; in 1924 were 5478 or 5.5 per 100,000 population.

Total deaths from anemia other than pernicious anemia in 1923 were 708 or 0.7 per 100,000 population; in 1924 were 689 or 0.7 per 100,000 population.

TABLE 1.—Deaths from Anemia and Per Cent Per 100,000 Population

|           | Pernicious Anemia | Anemia Other Than Pernicious | Total Deaths |
|-----------|-------------------|------------------------------|--------------|
| 1923..... | 5159 or 5.3%      | 708 or 0.7%                  | 5867 or 6%   |
| 1924..... | 5478 or 5.5%      | 689 or 0.7%                  | 6167 or 6.2% |

1301 Medico-Dental Building.

DISCUSSION

RACHEL L. ASH, M. D. (490 Post Street, San Francisco).—Doctor Pollock's review of the severe anemias is both comprehensive and timely. He calls our attention to the necessity of differentiating the various types, offers a practical classification for clinical purposes, and pleads a more universal recognition of pernicious anemia. He insists on the importance of early detection and careful treatment of all low-grade anemias by modern methods. That there is still very little known of the etiological factors, and that the blood picture is by no means the first clinical manifestation of grave anemias, is carefully emphasized by the writer. It is interesting to note in the appended statistical report, that deaths from the grave anemias, including pernicious anemia, seem to be on the increase.

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J. M. McCULLOUGH, M. D. (Crockett).—Doctor Pollock's paper expresses the most modern views on the anemias. He calls our attention to certain symptoms that indicate a beginning anemia. Certainly these cases should be kept under observation, as the suggestion that the lesser grades of anemia be given close attention is very good. Undoubtedly many of the severe anemias could be prevented by earlier diagnosis and removal of foci of infection.

Minot and Murphy have given us a much more efficient method of treating pernicious anemias, and I believe that by carrying out these measures it will be possible to show a decrease in the mortality rates instead of the apparent increase that the attached statistics now show.

In closing I wish to add that more attention should be paid to carbon monoxid and lead as a factor in many anemias.

✽

WILLARD J. STONE, M. D. (65 North Madison Avenue, Pasadena).—Doctor Pollock's observations on the anemias cover an interesting field in clinical medicine. I agree with his view that the color index is of little relative value in differentiating so-called primary from secondary anemia. Since the color index is dependent upon the estimation of hemoglobin by color matching and the ability to recognize shades is so variable in the different individuals who are called upon to make the tests, the findings are often inconclusive. It may be emphasized that the hemoglobin of so-called normal men, women and children varies, and that the limits of normal vary in different parts of the country (i. e., at the seashore level, in cold as contrasted with warm semitropical areas, or in altitudes above 4000 feet). Under a given oxygen pressure it is found that less oxygen is taken up by hemoglobin the higher the temperature. It may also be emphasized that the various so-called standards vary. The Dare hemoglobinometer in common use in this country has for its standard a hemoglobin content of 13.77 gm. per 100 cc. for 100 per cent, the Sahli hemoglobinometer



also commonly used has for its standard a hemoglobin content of 17.2 gm. per 100 cc. for 100 per cent, while the Hellige standard is 17.0 gm. per 100 cc. for 100 per cent. Variations in cell volume must affect the determination enormously. In hospital work it has not been uncommon to note a variation of 15 per cent in the readings taken by different interns or technicians. I sympathize therefore with Doctor Pollock's point that until some more accurate method is devised for the clinical determination of hemoglobin its importance is a relative one only, and slight variations are of no significance with present methods. His remark that splenectomy has proven of no permanent value in any anemia I think is open to question. In many cases of splenic anemia great improvement occurs after removal of the spleen. The same may be said to follow removal of the spleen in the anemia of hemorrhagic purpura. Those who are interested in this phase of treatment should read the excellent article on splenectomy by W. J. Mayo in the *American Journal of the Medical Sciences* for March, 1926. In general we may feel more hopeful than a few years ago about the outlook in the severe anemias. The work of Minot and Murphy on liver feeding, and the vitamin deficiency studies of the late Karl Koessler of Chicago, have pointed the way to new investigations which give great promise.

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DOCTOR POLLOCK (closing).—I am grateful for the discussion elicited by my paper, which was written last October (1927), with the avowed intention of "bringing forward such points as may be termed controversial in order by discussion to help toward a better understanding."

Much has been written concerning anemia during the intervening ten months, and, as Doctor Stone well says, "In general we feel more hopeful than a few years ago about the outlook in the severe anemias."

Let us assiduously search for the etiologic factors and study the pathological tissue changes in the various conditions associated with anemia.

## THE LURE OF MEDICAL HISTORY

WILLIAM HARVEY\*

### PART I

The Life of the Author of *De Motu Cordis*

By FRANK H. RODIN, M. D.  
San Francisco

"The Heart of creatures is the foundation of life, the Prince of all, the Sun of their Microcosm, on which all vegetation does depend, from whence all vigor and strength does flow."—From the dedication to Charles I.

ON May 14, 1928, delegates from universities and medical societies throughout the world met in London to attend the celebrations arranged by the Royal College of Physicians of London in honor of the three hundredth anniversary of the publication of William Harvey's great work, the *De Motu Cordis*.

Harvey lived during the last quarter of the sixteenth century and the first half of the seventeenth. This was a period of great political and social upheaval in England and on the Continent. In 1603 Queen Elizabeth died. Fifteen years later Sir Walter Raleigh was executed. It was the period of the Long Parliament (1640-1653) and the civil wars in England and Scotland (1642-1652). The Thirty Years' War was waged on the Continent (1618-1648). In 1649

Charles I, to whom Harvey dedicated his work, was executed. The divine right of kings was being questioned and the supremacy of the Catholic Church was being challenged. Slowly the old order was giving way to the new. Francis Bacon wrote his *Novum Organum* (1620) advocating the inductive system of reasoning, which is held by many to have inspired Harvey.

It was still heresy to question the old established beliefs, especially ecclesiastical. Servetus, who was a predecessor of Harvey, gave a correct description of the pulmonary circulation in a theological book entitled *Christianismi Restitutio*, published at Lyons in 1543. The book contained doctrines for which Calvin caused him to be burned with his book.

John Calvin, whose peculiar fad  
It was to call God murderous;  
Which further led the feverish cad  
To burn alive the Servetus.

In 1600 Giordano Bruno was burned at Rome. Galileo in 1632 was forced to abjure his scientific creed before the Papal tribunal.

The Renaissance in scholarship and letters had been well established. Astronomy was being placed on a new basis, and a new science of physics was beginning to spring up from Harvey's contemporaries, Galileo, René Descartes, and Borelli. About the same time chemistry was being placed on a rational basis by the work of Paracelsus and Van Helmont.

For over fourteen centuries Galen was the undisputed authority of medicine, with only a faint voice here and there such as Vesalius and Servetus, in the sixteenth century, questioning with great temerity this authority. Harvey's discovery of the circulation of the blood freed medicine and natural science from dogmas, superstition, and confusion and placed them upon a rational and scientific basis. This discovery made it possible for subsequent physiologists to work out the problems raised by Harvey, free from the limitations imposed by tradition.

### BIOGRAPHICAL SKETCH

William Harvey was born at Folkestone, Kent, on April 1, 1578. The place of his birth was a building of some importance, as later it became a posthouse. Very little is known about the Harvey family prior to William's father, Thomas Harvey, who married Juliana Jenkin, who died a year later, leaving him a daughter. Thomas Harvey soon married again and William was the first child of the second union. The father was a man of some importance, as he was a jurat or alderman of Folkestone and became mayor of that city in 1600. Very little is known of William's mother. There were seven sons and two daughters in the family. The second son held many important positions with the court and government, and was also a member of parliament for Hythe. The remaining five sons were very successful in business and became great merchants.

William's early education was obtained at Folkestone. When ten years of age he attended the grammar school at Canterbury. When sixteen

\* Part I deals with a history of the life of William Harvey, and Part II, which will appear in the January issue, with Harvey's great work, *De Motu Cordis*.



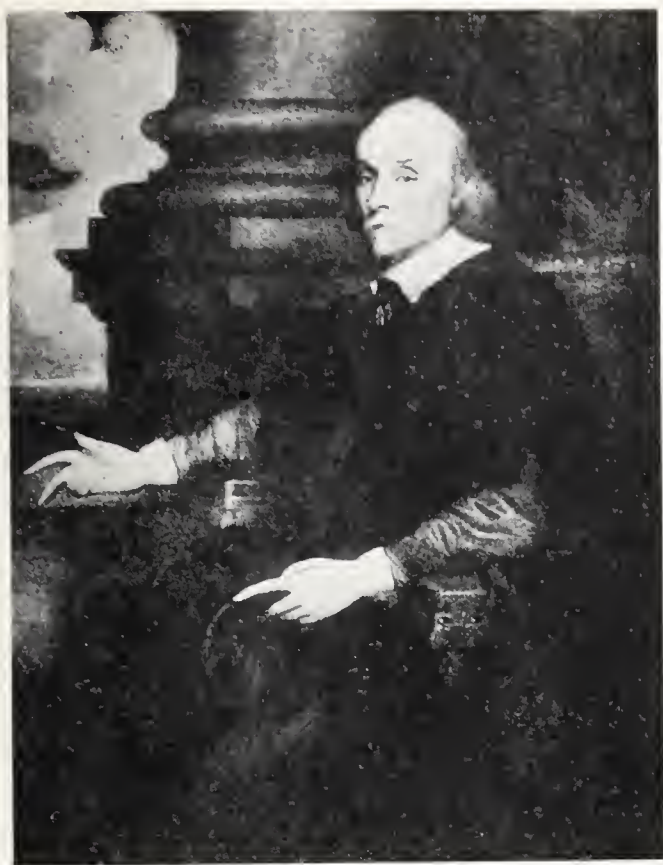


Fig. 1.—William Harvey, 1578-1657. From the portrait by Cornelius Jansen (1590-1664) belonging to the Royal College of Physicians of London.

years of age he was enrolled at Caius College, Cambridge, and he graduated in 1597, four years later, with the B. A. degree. By choosing Caius College, Harvey probably decided early in life to follow the medical profession, as most of the undergraduates there were medical students.

On completing his studies at Cambridge, Harvey went to the Continent for further study. He went to Padua, the university town of Venice. Many reasons probably influenced him in his choice. The university was famous for its anatomical school made renowned by Andrea Vesalius, the first experimental anatomist. It was at Padua that Vesalius did his work which was published in his famous *Fabrica Humani Corporis* (1555), where he stated that he could find no pores in the septum of the heart, upsetting Galen's theory of fourteen hundred years' standing. His successor Fabricius ab Aquapendente was engaged at that time in studying the valves of the veins.

Little is known about Harvey's activities at Padua. He became intimate with Fabricius, whose work no doubt influenced Harvey greatly. Harvey remained at Padua for about five years, and in 1602 took there his diploma of Doctor of Physic, at the age of twenty-four.

As soon as he returned to London he took a house there and began to practice as a physician. He joined the College of Physicians, who alone had the power of licensing to practice medicine in London. Five years later he was elected a Fellow of the Royal College of Physicians and two years later was appointed as assistant physician at St. Bartholomew's Hospital. With this

office went an official residence near the hospital, but Harvey never took the house. However the Court of Governors decided in 1626 that his yearly honorarium of £25 should be increased £8 6s. 8d. in lieu of the house. Harvey married a daughter of Doctor Browne, who was physician to Queen Elizabeth and to James I. The union was childless and very little is known of Mrs. Harvey. She died before her husband.

The teaching of anatomy in England was the privilege of a few colleges and corporate bodies, and in London this monopoly was exercised by the College of Physicians and the Barber Surgeons' Company. They gave public lectures with demonstrations of the anatomy of the body. It was compulsory for every member of the company to be present at these lectures. Fines were imposed for absence or unpunctuality. The best available teachers were secured. Pepys, who attended one of these demonstrations, describes it in his *Diary* under the date February 27, 1662:

"About 11 o'clock, Commissioner Pett and I walked to Chirurgeons' Hall, we being all invited thither, and promised to dine there, where we were led into the theatre; and by and by comes the reader, Doctor Traine, with the master and company in a very handsome manner; and all being settled, he begun his lecture; and his discourse being ended, we had a fine dinner and good learned company, many Doctors of Physique, and we used with extraordinary great respect. Among other observables, we drunk the king's health out of a gilt cup given by King Henry VIII to this company, with bells hanging at it, which every man is to ring by shaking, after he hath drunk up the whole cup. There is also a very excellent piece of the king done by Holbein, stands up in the hall, with the officers of the company kneeling to him to receive their charter. Doctor Scarborough took some of his friends and I went with them, to see the body of a lusty fellow, a seaman, that was hanged for a robbery. I did touch the dead body with my bare hand; it felt cold, but methought it was a very unpleasant sight. It seems, one Dillon, of a great family, was, after much endeavor to save him, hanged with a silken halter this sessions, of his own preparing, not for honor only, but, it being soft and sleek, it do slip close and kills, that is, strangles presently: whereas a stiff one do not come so close together, and so the party may live the longer before being killed. But all the doctors at table conclude that there is no pain at all in hanging, for that it do stop the circulation of the blood; and so stops all sense and motion in an instant."

In 1615 Harvey was appointed Lumleian lecturer established in 1581 by Lord Lumley and Doctor Caldwell at the College of Physicians. At that time, according to Power, he was: "A man of the lowest stature, round-faced, with a complexion like a wainscot; his eyes small, round, very black and full of spirit; his hair as black as a raven and curling; rapid in his utterance, choleric, given to gesture, and used when in discourse with anyone, to play unconsciously with



the handle of the small dagger he wore by his side."

Harvey rose rapidly in his profession and soon had important and fairly lucrative practice. In 1618 he was appointed physician extraordinary to James I. Harvey became one of the most eminent men of his time. In 1613 he was elected a censor at the College of Physicians, was re-elected in 1625, and again in 1629. He was one of the four censors who supervised those engaged in the practice of medicine in London and took action against quacks. The censors also visited the druggist and tested the drugs to see if they were genuine and up to standard. In 1627 he was made one of the "Elect," a body of eight men who chose one of their number as president, and who examined candidates for medical license.

## CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

### TAMPON TREATMENT OF SINUS DISEASE IN CHILDREN

By REA E. ASHLEY, M. D.  
AND  
A. G. RAWLINS, M. D.  
*San Francisco*

A REVIEW of the literature on this important subject shows that there is very little written about it, and also that there is no mention of the tampon treatment in children with sinus trouble. We have had such uniformly good results in our few cases that we feel justified in presenting an outline of our procedures.

#### EMBRYOLOGY

According to Skillern the maxillary sinuses are present at birth, but are situated very high up and are internal and not just below the orbit. The floor of the antrum just about reaches the attachment of the inferior turbinate. This is important in operating on the antrum of a child, as in the adult the floor is usually about the level of the floor of the nose or lower. The frontal sinus appears between the first and third years as an upward expansion from the anterior ethmoidal cells, but it is not until the seventh to ninth years that the sinus may be recognized as a separate cavity. The frontal sinus is frequently absent on one or both sides. The ethmoidal cells are present at birth, and the sphenoid appears as but a faint depression in the body of the sphenoid bone. Reabsorption of the sphenoid bone commences at the second year, and by the sixth year the sinus is fairly well developed.

#### DIAGNOSIS

1. *History.*—The commonest complaints given are excessive nasal discharge, cough, frequent colds, undernourishment with failure to gain weight, "growing pains," headaches, impaired hearing, blinking of eyes, and bad breath. Patients are sometimes referred for examination for cause of bronchitis, asthma, or fever of unknown origin. Most of our cases have already had an adenotonsillectomy performed, but this of course is not always the case. Taking up a few of these symptoms more in detail, we find that the cough

is usually of a hacking character and often is present just at night, since during the day it takes the form of "clearing the throat." The growing pains may be explained as a neuritis, myositis or arthritis from the focus in the sinuses; the headaches are usually vague, not well localized and usually are not severe; the impaired hearing is usually noted by the mother or school-teacher, and at times seems to be intermittent. This intermittency is likely best explained by the fact that the patient has acute flare-ups with congestion of the eustachian tubes and tubotympanic catarrh. Another very interesting symptom we had in one case was continual blinking of the eyes which the mother thought was habit. After six tampon treatments the blinking disappeared. After several months the symptom returned, to be again controlled by a series of tampon treatments.

2. *Examination of Patient.*—On examination pus or mucoid discharge is usually found in one or both nares. We have been unable to see the ostia of sinuses in children or note any special pathology in the mucous membrane around the ostia, as has been described by some observers. We sometimes find infected tonsils or occasionally a cryptic tonsillar remnant with a large adenoid in the nasopharynx. One of the best signs we have noted is the lateral pharyngitis or streaks of hypertrophied lymphatic tissue down the nasopharynx or oropharynx, caused by the dropping down of irritating discharge from the sinuses. Another sign that is found in practically all cases is the enlargement of the postcervical glands. These glands are small and hard and are usually found in strings down both sides of the neck, often extending down over the scapula.

3. *X-Ray Findings.*—We do not find transillumination of any value in children, but do rely very much upon x-rays. The commonest pathological x-ray picture is cloudiness of the antra, although not uncommonly the ethmoids are also cloudy. X-ray pictures of the chest often show hilus scarring and peribronchial thickening. These cases are frequently diagnosed as pulmonary tuberculosis, when as a matter of fact clearing up the upper respiratory tract will often clear up the chest condition and all of the symptoms. Pictures taken before and after treatment will show that it is possible to clear up the pathology in the sinuses.

#### TREATMENT

The treatment will depend somewhat upon the findings. If infected tonsils and hypertrophied adenoids are present, they are removed first of all; this alone may clear up the condition. If this does not clear it up the patient is treated with nasal tampons, consisting of small strips of cotton saturated with 5 per cent neosilvol to which 1 per cent ephedrin in normal saline is sometimes added. The nose is packed as nearly full as possible, leaving the tampons in about ten minutes and treating the patient every other day for about six times. After putting in the tampons it is a good idea to tip the patient's head far back and add several drops of the mixture to each nostril, with the head first to one side and then to the other, so that it may run along the meati on both sides.



The theory of this treatment is mainly that of shrinkage of the mucous membrane, thus allowing the sinuses to drain more freely. The antiseptic value of the neosilvol is of less importance. It is difficult in some cases to get coöperation from such young patients, but if care is taken not to hurt them the first time they usually submit with ease to subsequent treatments. Between treatments drops of neosilvol and ephedrin are prescribed, to be used two or three times daily. Ephedrin should not be used too freely, as we have had several cases which have developed an idiosyncrasy to it.

If this does not clear up the symptoms an x-ray of the sinuses is taken. If the antra are cloudy the patient is given an anesthetic and the antra washed, using a 2.5-inch needle inserted under the inferior turbinate, always drawing back with a Luer first to make sure the needle is in the antrum. The antrum is filled with normal saline and aspirated, the fluid which returns into the Luer being examined. If it contains pus, mucous shreds or flakes, a window is made under the inferior turbinate as follows: first push up the inferior turbinate, next enter the antrum with a punch; withdraw the punch and insert an antrum rasp and rasp out the thick anterior angle. Next take a heavy punch forceps and punch out as far back as possible, making a large opening. No drain or pack is used. In some cases it is possible to wash the antra with a blunt trocar several days later, but this is often impossible unless one wants to give the patient a little gas. Following this the patient is given a series of tampon treatments and the condition usually clears up.

If the symptoms do not clear up following the above treatment it may be necessary to send the patient to a warm, dry climate, such as Needles, California, or the Santa Clara Valley. Sun baths are often very effective, starting out with an exposure of a few minutes and working up to about an hour a day. This acts as a very good tonic and increases resistance to infection. Treatments with a quartz lamp act in a similar way. Whenever it is possible a pediatrician should handle the medical care, the most important part of this being the diet. We find that a diet containing high vitamin content with food such as eggs, orange juice, carrots, and leafy vegetables is an aid to recovery. Cod-liver oil in some form is also very effective. It is not necessary in all cases to carry out all the treatment mentioned above before getting good results, but in some cases even the most radical procedure will not give complete relief of symptoms.

We are not presenting any case histories, but have mentioned the commonest and most interesting symptoms which have presented themselves, and as a whole these symptoms have cleared up under the above treatment. We have had only about fifty cases, and hence consider this only a preliminary report, hoping that we may be able to produce a more extensive and thorough article at a later date.

#### SUMMARY

1. *Symptoms*.—Nasal discharge; cough; frequent colds; undernourishment; "growing pains";

headaches; impaired hearing; blinking of eyes; bad breath; symptoms of asthma and bronchitis; fever of unknown origin.

2. *Examination of Patient*.—Pus in nose; infected tonsils or of tonsillar remnant; hypertrophied adenoid; lateral pharyngitis; postcervical adenopathy.

3. *X-ray findings*.

4. *Treatment*.—Adenotonsillectomy or removal of adenoid and tonsil remnant; nasal tampons with drops in nose; washing of antra and opening if necessary; dry, warm climate; sun baths or quartz lamp treatment; diet and cod-liver oil.

384 Post Street.

## EROSIO INTERDIGITALIS BLASTOMYCETICA\*

### CASE REPORT

By GEORGE F. KOETTER, M. D.  
Los Angeles

IN May, 1917, Fabry<sup>1</sup> reported a series of yeast infections of the hands to which he gave the name *erosio interdigitalis blastomycetica*. In 1918 Berendsen<sup>2</sup> published a paper on the same subject. In 1918 Fabry<sup>3</sup> published another paper. In April, 1921, Stickel<sup>4</sup> reported a series of forty-five cases, thirty-eight of which occurred in women. In March, 1922, Greenbaum and Klaunder<sup>5</sup> published a thorough paper on yeast infections of the skin. Mitchell<sup>6</sup> in December, 1922, published a series of three cases.

*Erosio interdigitalis* or *saccharomycetica* are offered as substitutes for the term *erosio interdigitalis blastomycetica*, which is confusing. The causative organism is not the *blastomycetes*.

I do not think that race has anything to do with this condition except as far as the use of soap and water is concerned, although eleven of twelve cases occurred in Jewish women. I have never encountered this condition in orthodox Jewish women who use washing powders.

My series consists of twelve cases: two of these patients failed to report for observation subsequent to the final scrapings, which were negative for yeast organisms.

### CASE REPORT

Mrs. B., age fifty-four, occupation dishwasher, presented a lesion limited to the web of the third interspace of the right hand. The lesion first appeared about eight months ago and remained constantly in the same area, and showed no tendency to spread to the palmar or dorsal surfaces. Itching and burning was intensified by having the hands in soapy water. During a vacation of two weeks a slight remission occurred.

*Examination*.—The web of the third interspace showed a sharply defined, shiny, red epidermis surrounded by a collarette of upturned scales. Vesicle formation and fissures were absent. Scattered over the red epidermis were small areas of thin, white macerated epidermis which could be removed only with a great deal of difficulty and discomfort to the patient.

Thorough examination of the feet showed no mycotic infection.

*Microscopic*.—Small pieces of thin, white, macerated epidermis soaked in 40 per cent KOH, disclosed numerous double contoured spores which were budding, and solid mycelial threads. Tissue planted in

\* Read before the Dermatology and Syphilology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.



Sabouraud's media gave rise to shiny, cream colonies of almost pure culture of yeast organisms. Some secondary contamination was encountered, but on exposing the initial culture to a saturated solution of chloretone and again transplanting to Sabouraud's media, I obtained a pure culture.

The colonies appeared about three days after implantation of tissue. Microscopically the growth disclosed numerous budding, double-contoured organisms, but no mycelial threads were demonstrable. The growth reached its maximum peripheral extension in about one month. Thanks are due to Miss Ethel Mahoney for her coöperation in the laboratory examinations.

*Experimental.*—A medical student volunteered for experimental inoculation, and a typical growth in the web of the third interspace was obtained in ten days. No further experimental work has been done up to the time of this paper.

#### TREATMENT

From previous experience this intractable disorder is known to resist antiparasitic measures such as Whitfield's ointment, chrysarobin and a combination of salicylic acid and ammoniated mercury. Repeated exposures of unfiltered x-ray and Kromeyer light to the point of tolerance produced no appreciable effect.

The patients were instructed to keep their hands out of soapy water as much as possible. By the application of one to two per cent aqueous solution of copper sulphate in the form of wet dressings three times daily, for ten minutes, complete cure was obtained in a period of eight to ten days. Repeated scrapings and cultures after clinical cure were negative for yeast organisms.

#### SUMMARY

1. In a series of twelve cases of *erosio interdigitalis blastomycetica* clinical and microscopical cures were obtained.
2. The duration of the disease in this series varied from two months to one and one-half years.
3. Soapy water is an important factor in the production and continuance of this disorder.
4. The absence of vesication, chronicity, fixed location, and the occurrence of the disorder on the hands of washerwomen, make the dermatosis worthy of consideration as an entity.

1136 West Sixth Street.

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Pigmented nevus.

## A MEDICAL CURIOSITY

### PIGMENTED NEVUS—WITH CASE REPORT

By M. S. KING, M. D.

Loma Linda

LAST November (1927) a patient came into the Loma Linda Sanitarium complaining of certain symptoms which are not of sufficient interest to be mentioned in this article, but he did present a physical defect which was indeed a very striking phenomenon, and which, to say the least, was a medical curiosity.

The point of interest was a peculiar congenital skin anomaly on his body. The most striking feature of this skin growth was its peculiar distribution, and the ideas that the patient himself had as to the cause of his trouble. The skin over the affected area was very dark and roughened in appearance and slightly elevated above the surrounding areas, and covered with a dense heavy growth of black hair, giving him a distinctly animal-like appearance.

The growth covered almost the entire upper surface of the back and the shoulders, extending about halfway up on the back of the neck and about halfway round toward the midline of the chest in front. It was very symmetrical in appearance and had a peculiar cut-away effect in front, resembling in appearance some sort of jacket or vest. It also extended a few inches down on the arms, giving it the appearance of short sleeves. The patient stated that he never perspired over this area. There were many smaller patches of a similar nature over the rest of the body and extremities. It was a source of great embarrassment to him, and had been more so in his adolescent years, as swimming and other similar activities so dear to the boyish heart were taboo for him. One of the smaller patches was removed and examined microscopically, and the following report given: "Sections show irregularity of the epidermis, and pigmentation of the deeper layers. In the corium are rather diffuse collections and small dark-staining cells, probably nevus cells. No evidence of malignancy. Diagnosis: pigmented nevus."

The patient was a firm believer in the popular idea of prenatal marking of the fetus. He stated that while he was a child (*in utero*) that his mother had wanted a sealskin jacket, which was the latest thing in fashion at that time, and was saving up money to buy one. Someone broke into the house and stole the money she had hoarded, and she was unable to get the jacket. This was a source of keen disappointment to her, and both she and her son believe it to be the cause of this peculiar birthmarking.

Loma Linda Sanitarium.



# BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

## PAIN AND NEURITIS

**Arthur L. Fisher, San Francisco.**—Neuritis is a popular diagnosis with both the doctors and the laity, but neuritis is a rare disease. It does exist, but it is not common. A generation ago the term "rheumatism" occupied the place now held by the word "neuritis." Both these terms are used to mean pain. Patients do not like being told they have a pain—they know that already. If told they have neuritis they are better satisfied.

The duty of the physician is to find the cause of the "neuritis"; not simply to treat the pain.

If one understands the mechanism of the production of pain it is far easier to trace the source of it. Consider first that location where the anatomy of the nerves (the conductor of the pain) is well known. I refer to the hip-joint. It is well known that a child with hip-joint disease frequently does not complain of pain in the hip at all, but in the knee region. The explanation of the mechanism of this pain is the explanation of practically all joint pains. A portion of the hip-joint is supplied with sensory fibers by a branch of the obturator nerve. Afferent impulses travel along this branch to a certain level of the spinal cord; from this same level efferent impulses are sent out and are perceived at or near the periphery of the nerves: *e. g.*, when one strikes his "funny bone" the pain is felt in the fingers.

If one bear these afferent and efferent impulses in mind the understanding of some of the "neuritic" pains is very easy.

Consider sacro-iliac pain. In the typical case the pain is felt down the sciatic nerve, but not necessarily as, in some cases, it is referred to the lumbosacral region only and in others to both. In this case the anatomy of the nerve supply is unknown. It is a problem yet to be worked out; but the most probable explanation is that of a multiple nerve supply—different nerves supplying sensory fibers to different parts of the joint. If one portion of the joint, supplied mainly by fibers from the sciatic, be affected, then the afferent impulse travels along a sciatic branch to a certain level of the cord and the efferent impulses are sent out from the cord along the main branches of the sciatic and hence the pain is perceived in the leg.

If, on the other hand, that portion of the joint supplied by one of the lumbar nerves becomes irritated, then the afferent impulse will travel along a branch of a lumbar nerve to the cord and be sent out again along the lumbar nerves to the lower part of the back and the pain be perceived

there. Or in other instances both portions of the joint may be irritated and pain perceived in both the back and the lower extremity.

"Neuritic" pains occur in the arms also; they usually arise from one of four places: (1) the joints of cervical spine; (2) shoulder joint; (3) subdeltoid bursa; and (4) acromioclavicular joint. In each case an inflammatory change in one of the structures mentioned causes the pain, and differential diagnosis should be directed toward them.

One frequently hears that nerves are impinged upon as they pass through the spinal foramina and that the pain originates from pressure on the nerve. This I believe to be untrue, for it seems impossible to have a mixed motor and sensory nerve come through a foramen that is too small for it and have the pressure exerted on the sensory part of the nerve only. If pressure were exerted on the nerve the motor portion would suffer just as, if not more, readily than the sensory.

When pain is arthritic in nature it is due to two causes: first, the pain of active inflammation, and, second, sprain pain. An inflamed joint is an injured joint the bearing surface of which is not always smooth and hence easily sprained. It is for this reason that arthritis frequently causes pain after the active disease has been arrested. It is also for this reason that industrial injuries in arthritis are so difficult to evaluate fairly.

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**John William Shuman, Los Angeles.**—Pain is the most frequent complaint of the distressed and suffering patient. It is a subjective symptom, cannot be measured, and may be real or imaginary. Pain is often a blessing in disguise which causes the owner to seek relief when the cause would have been disregarded.

Patients have difficulty expressing their pain sense in words, hence the terms "ache," "hurt," and "misery." The wise physician listens attentively to the complaints of the patient and tries to interpret correctly. He quizzes regarding the intensity, location, persistence, and type of pain.

Regional pain is as follows: head, chest, back, belly, and limb. Acute head, back and limb pains usher in such infections as smallpox, typhoid, and tonsillitis. Chronic head pain calls for differential diagnosis between arterial hypertension, sinusitis, nephritis, and brain tumor. Nocturnal headache speaks for tertiary syphilis as a cause.

Pleuritic pains are stitch-like in character and are present at the end of inspiration. Angina pec-

toris is diagnosed from intravertebral arthritis by the fact that with the latter each movement of the torso causes pain. Careful examination of the vertebral column by eyes and fingers, aided by the x-ray, will elicit symptoms for or against disease of the vertebrae.

Pain referred to the back may have its cause in the abdomen and limbs. Right lower abdominal pain has caused right rectus incisions, for appendectomy, when the cause was either diaphragmatic pleurisy, central pneumonia, purpura, or malaria.

Pain in the knee from hip-joint tuberculosis is well known. The lancinating, lightning or shooting pains of tabes dorsalis, especially in the lower limbs, must be diagnosed from arteritis obliterans, sciatica and varicosities; also the girdle pains of syphilis from "hunger pain" of gastric ulcer.

We must be mindful of the persisting painful sensations noted in psychasthenia and of the "pain-joy" in hysteria.

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**Charles Lewis Allen, Los Angeles.**—Many patients and not a few physicians attribute persistent pains of obscure origin to neuritis.

While nerves always transmit pain, pain does not necessarily originate in them. In the majority of cases their fibers simply transmit the painful stimuli from other organs to the perception centers.

Since nearly all nerves contain both afferent and efferent fibers, inflammation affecting them is usually productive of impairment or loss of motion and sensation and of vasomotor phenomena, as well as of pain, which last may be slight if the inflammation is not acute. These symptoms are limited to the motor and sensory distribution of the affected nerve or nerves.

It is true that pain may be the chief feature, especially at the start. Pain so distributed if unaccompanied by other symptoms, we are accustomed to attribute to "neuralgia," a painful condition in a nerve the exact mechanism of which we are ignorant.

Probably many cases of neuralgia are due to a neuritis which does not proceed beyond the irritative stage.

Since nerves lie in close relationship to other structures in which pain may originate, it is often difficult to decide just where the trouble starts. Particularly is this the case in muscular areas. In general, muscle fibers when inflamed are less sensitive to pressure than nerves, the pain has not a characteristic distribution and is much intensified when the muscle contracts.

In the lumbar and intercostal regions the differentiation is especially difficult, since the pain may follow the course of the intercostal nerve, or the sciatic respectively. Most lumbagos are regarded as due to fibrositis or fibromyositis, but many back pains are reflex in origin, while sacroiliac disease must always be considered.

The posterior roots of the spinal cord have a skin representation quite different from that of

the peripheral nerves, as demonstrated chiefly by Head, to whom we also owe an explanation of the fact that visceral disease is often accompanied by pain in surface areas supplied from the same spinal segment. His figures reproduced in our textbooks afford a useful orientation.

Neuritis may affect any part of a nerve and even the spinal roots, a "radiculitis."

Segmental pain and other loss of function should attract our attention to the vertebral canal since it is often secondary to meningitis—usually syphilitic, tumor, or bone lesion. Witness the lightning pains and girdle sensation in tabes; pain in the back of neck, up the occiput and down the arms in cervical pachymeningitis; the hyperesthesias, anesthetics, and loss of function in transverse lesions and those of the cauda equina.

In diagnosing the cause of pain, the bones, muscles, and fascia should come under investigation, while search for possible reflex sources of pain in the thoracic, abdominal and pelvic organs should be made. The condition of tendon and skin reflexes, of sensation and the reaction of the pupils to light, will furnish important indications.

Only the demonstration of a thickened and sensitive nerve or of the distribution of pain and loss of function over a definite nerve area, perhaps confirmed by muscular atrophy and change in electric reactions, will justify a diagnosis of neuritis.

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**F. M. Pottenger, Monrovia.**—The sensory nerves of the body possess receptors which are adapted to picking up and transmitting various types of impulses. We are too apt to think of sensory changes and pain as being synonymous. Pain is only one of a number of sensory disturbances. We meet in the clinic dull pain and sensations of a burning, boring or cold character, the sensation of motion, the sensation of equilibrium, and many other types of sensation. Head particularly has described many sensory phenomena.

The receptor which picks up a sensation is one which is adapted to that particular stimulus. Physiologically, receptors for various sensations are adjusted to the part where such sensations originate. Thus, the receptors for sight are confined to the tissues which receive light impressions; those for hearing to those which receive impressions of sound, and those for pain, to those which are adapted to ordinary stimuli.

Viscera are so protected by their position within the body that they have no necessity for noting ordinary phenomena which the skeletal tissues are obliged to take cognizance of. Therefore they are not sensitive to those stimuli which cause pain on the surface of the body. Furthermore stimuli which originate in the viscera and are translated into pain, have the pain expressed by sensory skeletal nerves whose cell bodies lie adjacent in the central nervous system to the afferent visceral



nerves which carry the stimulus centralward, according to the following law of Head: "When a painful stimulus is applied to a part of low sensibility (the various viscera) in close central connection with a part of much greater sensibility (the parts supplied by the segmental somatic nerves) the pain produced is felt in the part of higher sensibility rather than in the part of lower sensibility to which the stimulus was actually applied."

Visceral pain, therefore, is a referred pain—a pain referred to the surface of the body, the connection taking place in the embryologic segment to which the particular organ is related in its nerve connections.

Since visceral pain is expressed through the somatic nerves, by knowing the relationship which each important viscus bears to the spinal segments developmentally, we may follow out the sensory nerves from those segments and find the chief location of pain for each particular viscus.

Referred pain may accidentally be over the viscus from which the impulses causing the pain originate, as in the pleura and peritoneum, or, it may be far removed from the organ, as the arm pain in angina, or the shoulder pain in diaphragmatic pleurisy.

One of the most interesting types of pain is recurrent pain. Patients who have a chronic illness involving any particular organ have impulses traveling centralward over the afferent nerves from that organ for a long period of time. Under conditions of health a certain degree of stimulation will travel centralward over the afferent nerves from an organ without being perceived by consciousness; and there is a certain degree of latitude in the strength of the stimulus required to break down the inhibition offered by the higher levels.

As a result of long-continued bombardment of neurons by harmful stimuli they become hypersensitive, so that they respond more easily than normal; and at the same time inhibition is broken down, so that whenever an unusual stimulus comes to the nervous system, these injured sensory neurons are unable to withstand a normal amount of stimulation and, with the inhibition of the higher centers impaired, they react with pain. This offers an explanation for the recurrent pain in chronic visceral inflammation, which is so often found in the neurons which refer the pain to the body surface. For example, the woman with chronic pelvic inflammation, or the individual who has had pleurisy, or one who has had an inflamed kidney or gall bladder, will, under many conditions of extra physiologic demand, such as those caused by tiring, worry, discontent, overwork, menstruation, and sudden changes in weather, find the injured neurons unable to make the necessary physiologic adjustment and so respond with pain; while in uninjured neurons connected with other viscera there will be no pain.

**Inspection of Vaccines and Serums.**—The United States Public Health Service, in connection with its inspection of biologic products as required by law, performs a service of inestimable value to the general public. Before a biologic product, such as a serum, toxin, vaccine or antitoxin, may be sold in the United States in interstate or international commerce a license must be obtained from the Public Health Service. The granting of a license means that inspection of the establishment concerned and laboratory examinations of samples of its products are made regularly to insure the observance of safe methods of manufacture, to ascertain freedom from contamination and to determine the purity or safety, or both, of the various products, and the potency in cases where standards exist. From time to time lists of the manufacturing firms which produce such products as are licensed are published, together with the names of the products for which they are licensed. Such a list recently issued by the Public Health Service emphasizes the importance of this work.—*Health News*.

**University of California Students Aid University.**—With the cost of their \$1,463,000 Memorial Stadium totally paid except for \$200,000 in scrip which will be discharged by ticket sales within the next two years, students of the University of California have laid plans to coöperate with the regents in a campus expansion calling for the expenditure of approximately \$1,500,000, according to an announcement just made by William Monahan, graduate manager.

The first payment toward this program, \$100,000 in cash, has just been turned over to the university, and the rest will be paid in yearly instalments from football game income. The expansion program includes the purchase of almost eight acres of land in the residential district adjacent to the campus. This land will be used to take the place of drill fields and athletic fields which the university has found necessary to appropriate for building purposes.

In explaining the plan, Vice-President and Comptroller Robert G. Sproul points out that with the steady growth of the university, necessitating the erection of more and more buildings, the area of level ground on the campus available for military drill, physical education classes, and sports in general has been reduced to such an extent that the students are left without adequate space for the activity required for maintenance of health.

"By offering their coöperation," he says, "the students are making a gift of magnificent proportions to the state, and freeing an equal sum for academic building purposes. This will be the third contribution of land to the state that has been made by the students from football game receipts. One tract of land on the southern border of the campus was purchased a score of years ago at a cost of \$31,890. This area is now partly occupied by the new Hearst Memorial Gymnasium. Another tract of land costing \$267,842 was purchased a few years ago to fill out the area necessary for the erection of the Stadium."

In addition to these contributions of land to which football profits have been diverted, the students also contributed \$90,000 toward the erection of Stephens Union building, student center, thereby freeing another university building for academic uses. Later they furnished \$132,225 for the furnishing and equipping of this new building. Also each year they contribute \$1,391.84 toward the upkeep of the west end of the campus which is used for drill, physical education and sports.—*U. C. Clip Sheet*.

**Does Education Pay?**—Education pays, not only in a richer life, but in money returns. An investigation of the earnings of nearly five thousand people in all parts of the United States showed that the average incomes of the more highly educated were greater at each stage of life, and that advance in income came to an end earlier for the less educated groups—at fifty years of age for those with common-school education and at fifty-five for those with high-school training, while it did not come to an end for college-trained men until the early sixties.—*U. S. Department of Labor*.







physicians, loyal to like standards of professional practice.

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*Lay Director of Department to be Executive Officer of Board of Medical Examiners.*—"The director of the department shall be the executive officer of each of the boards herein mentioned. Each board may elect one of their own members as secretary and fix his salary with the approval of the Director of Finance."

Query.—To what extent would this new director of the department as "the executive officer of the Board of Medical Examiners" dominate or determine what its action should be, or how its decisions should be carried out? Is it fair to thrust on a layman, responsible not only for his entire department, but also as executive officer, for every one of the dozen or more other boards taken over, so serious a group of responsibilities as of necessity come to that citizen who is the executive officer of the Board of Medical Examiners of California?

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*New Lay Director Has Full Authority to Employ Deputies of the Board.*—"In accordance with Civil Service regulations, the director shall have full authority to employ all employees necessary to properly administer the work of the department and the work of the boards. Upon the nomination of the respective boards mentioned herein, investigators and attorneys may be employed by the director of the department to assist said boards in prosecuting violations of their respective acts."

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*Monies Collected.*—"All monies collected by the department for and in behalf of the activities of each respective board mentioned herein, shall be remitted to the State Treasury in accordance with law for credit to the respective funds now in existence for each board."

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*Very Important That These Excerpts Be Studied.*—The above excerpts are here presented because the licensure of physicians and surgeons is a matter in which the California Medical Association, its component county societies, and its more than four thousand members are all intensely interested. To what extent the final draft of this measure, which will be presented to the legislature in January, will vary from the tentative copy which has come into the hands of the writer, we do not know. We are of the opinion, however, that the provisions in which we as physicians are interested, will be somewhat in line with the excerpts here printed.

The important thing before us now is this: that as individuals and through our county and state associations, we give this very important subject some prompt and preliminary thought. Such thought will place us in better position to

later on indicate wherein we agree or disagree with the plan of the proposed department, insofar as the medical profession of California and the California Medical Association are concerned.

#### CLOSED HOSPITAL PROFESSIONAL COURTESY—CONSULTATIONS— EXCESSIVE FEES

*Hospital Standardization.*—The leaders in the medical profession have always given full endorsement and hearty support to the general efforts which are intended to make all hospitals measure up to proper standards of efficiency in service of sick and injured fellowmen.

The more recent and concerted effort to maintain through national bodies a supervision of American hospitals, so that those of acceptable standard could be so rated and so accredited to both lay and professional worlds has also had a very generous and whole-hearted support.

Such support does not mean, however, that whatever a so-called standardized or accredited hospital, through either its executive or professional staffs may promulgate or do, must necessarily be right, or be worthy of united support from the medical profession of the community.

For it is quite possible that some of the means which have been adopted in order to better or more rapidly attain certain desired ends in hospital standardization, as time goes on, may be found wanting; either because of undesirable features inherent in the means used, or which may subsequently develop.

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*Courtesy, as Part of the Art of Medicine.*—The practice of medicine partakes not only of a science but of an art. The practice of the art of medicine is worthy of the best thought of every physician, and is usually well understood by truly successful physicians. Among other things, the art of medicine takes in to special account the approach to the patient, but includes also the approach and relation of one physician to other physicians. There is an art in making such approaches become real aids in the promotion of the best interests of the patient and of the profession.

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*Courtesy Among Physicians—A Closed Hospital Incident.*—Thoughts such as those in the preceding paragraph came to us, when our attention was called to a recent experience of a well-known colleague. This experience presents some phases which may be worthy of consideration from the standpoint of individual and hospital staff courtesy procedures.

The case at issue was as follows:

A layman in one of the large cities of California, who was suffering from some joint trouble, was sent to a "closed hospital"—an institution in which only regular staff members were permitted to operate. The investigation of the patient's trouble led to the advice, since the tonsils might be one of the foci of infection, that the tonsils be enucleated. Upon being informed to that

effect, the patient stated he would wish to have the operation done by a certain nose and throat specialist whom he personally knew. In passing, it may be stated that this particular otolaryngologist was as well known in the community for the excellence of his professional work as were the colleagues who had advised tonsil enucleation. Now what happened?

The patient in effect was told that he was in a "closed hospital"; that its staff members worked in their own group; that the tonsil enucleation could be done to the best advantage of all concerned, if a certain otolaryngologist on the "closed hospital" staff performed the operation. The patient was not pleased at the suggestion, but at the end of two or three days gave in. Thus were the sanctity and tradition and procedures of the "closed staff" maintained!

A consideration of the facts as just given must necessarily inspire the question: Was the above procedure a good example of professional courtesy and ethics?

To put the proposition in its mildest terms, was not the procedure somewhat of an expression of too great a satisfaction with members of one's own group? A baser question could also come into one's mind, as to whether the fee of the patient so referred, could also have been a factor in maintaining the presumable supercordial and superloyal devotion of the closed staff members, which evidently existed in this group of this closed staff?

Upon what grounds could the facts as here given be satisfactorily defended? How were the standards of this particular closed hospital better maintained or advanced by such conduct? How can the closed staff colleagues who were parties to this transaction adequately explain why they acted in this wise, and in a manner that was far from ideal professional courtesy and conduct? Their own well-known and excellent personal professional attainments would not excuse the misconduct, if such it was. Rather would it make the improper conduct just that much more unpardonable and worthy of condemnation.

\* \* \*

*The Limitations of Loyalty.*—Loyalty is one of the fundamental virtues, and one which every successful man must have. But loyalty in the medical profession should not be limited to one's narrow circle of personal professional friends. If it reach not to the interests and rights of patients first of all, and then to the profession as a whole, it becomes not real and genuine loyalty of high type, but only a make-believe gesture of such.

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*Factors in Choosing Consultants.*—It is quite proper that every medical man should have the right to choose his personal professional friends, and to decide to whom he wishes to refer a patient who may need services outside his own field of work. But in so doing, he should be honest with himself and to his patient. If the patient is told that this or the other work should be done, the

patient should not be permitted to get the impression that unless it is done by a special professional friend of the doctor in charge, the work will not, or may not, be well done.

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*Excessive Fees.*—In similar manner it is quite proper for a physician or surgeon to make his own fee with a patient. If, however, for good reasons, the patient feels that the fee is beyond his means, then the doctor making the fee has either the option of making a reduction in the fee, or of stating that such and such colleagues are well trained men, but do not charge as high a fee. It is certainly very bad form to let a patient carry away the thought that unless the high fee doctor is permitted to operate, the patient's subsequent health or even life may be in jeopardy. Most of us know of instances where that has practically occurred.

In this last paragraph, our comments were intended to apply, especially not to physicians and surgeons who charge fees that somewhat approximate the average for any type of service, but to that limited group of practitioners who use a very high fee schedule and reputation as a presumable basis for attracting a certain type of patient who is apt to construe excellence of end result, to be synonymous with the greater size of the fee. If such practitioners confined their excessive fee activities to such type of persons, the transfer of pocketbook relationships would need excite no more sympathy than it does when the same procedure is carried out in certain so-called superexcellent and exclusive fashion shops and stores.

\* \* \*

*Obligations When Very High Fees Are Charged.*—The indignation of the profession at large is not in regard to the foolish thinking patients, to whom reference has just been made, for such often deserve what they get. The breach of faith takes place when the high fee colleague states the fee to a patient, to whom a real hardship would be created by payment of such an excessive fee; and does not state that through the county medical unit, or from a list of colleagues he himself can give, that the patient can find able professional aid within the patient's financial means. We can all of us remember, to our own good profit and to the benefit of the profession in which we are disciples, that the number of superphysicians who stand head and shoulders above their fellows in the daily practice of the healing art, are few, very few indeed. And certainly if such superexcellence does exist, it should not justify excessive fee procedures which can bring into disrepute the profession as a whole, as well as more honest-minded and acting colleagues. Members of the medical profession are entitled to the financial emoluments which should come to those who give good service in any business or profession, and who have spent money and energy in large and generous amounts, in order to acquire such efficiency. Nevertheless, the standards laid down by the men



who are the real leaders of the profession in any community, should be taken as the basis of what such money emoluments might well and fairly be, and then always, with the restrictions in mind, as above laid down.

### **PATHETIC EXHIBITION OF ANTIVIVISECTION PSYCHOLOGY**

*Mental Aberrations.*—Physicians, because of their training for, and through the practice of the art and science of medicine, are called upon to be observant of the psychologic slants of patients and of lay fellows. Mental obsessions are frequently noted by physicians, and the study of such is naturally of interest to them.

Faddists of all sorts exist, and each group presents its peculiar mental variations and eccentricities. The class of individuals, often mentally well meaning to a considerable degree, who individually and collectively call themselves antivivisectionists may be styled good exhibits, of what small influence modern day scientific knowledge and advances seem to have on the mental workings of a certain number of fellow citizens.

\* \* \*

*Callousness Regarding Injury to Animals Through Hunters.*—For instance, the great majority of human families in the Occident are meat-eaters, and as such suffer animals to be killed by this, that or the other method, in order that meat food may be provided for their personal enjoyment, comfort and well-being. In addition to the slaughter of animals by various means, in establishments designed for that end, people of the Occident permit the men folks of their families to go abroad during the different game seasons, and shoot with intent to kill, game which the law at the time does not protect. The world knows that because of the poor marksmanship of the majority of such hunters, thousands upon thousands of water and other fowl and of small four-footed animals are not killed, but only mortally wounded; their poor bodies left to be tortured by pain, starvation and other suffering until death comes with its relief. Of all this daily and massive recurrence of injury to animal life, often in no other interest than that of the so-called sport that is associated with the hunting of wild game, the antivivisectionists as a rule concern themselves little or not at all.

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*Supersensitiveness Regarding Laboratory Animals.*—But with that comparatively limited number of lower animals, such as dogs, cats, mice and monkeys, that are to be found in biologic laboratories of universities and medical institutions, antivivisectionists seem most tremendously concerned. The fact that these animals, in these universities and medical institutions, in nearly all instances are observed and experimented upon in most humane manner; and with the object in mind, to advance human knowledge so that human life and human usefulness and happiness may be

the better conserved, is not permitted to register in the mental consciousness of these benighted and self-constituted protectors of the small number of animals that are to be found in biologic laboratories.

\* \* \*

*Antivivisectionist Propaganda—Some of Its Expressions.*—Many antivivisectionists practically deny that through such experimentation, any knowledge of value to the conservation of human life and happiness is brought into being. Some antivivisectionists go farther than this avowal of disbelief. They organize themselves into militant organizations to bring into operation laws that practically forbid, or greatly handicap, experimentation upon lower animals, no matter for what beneficent purpose to the human race intended; and in addition carry on a vigorous and persistent propaganda to reach all fellow citizens, who for this, that, or the other special reason, would be apt to listen to their specious arguments and pleadings.

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*An Example of How They Work.*—The above leads us to recount an experience which during the last month came under our personal notice. It was an experience that led us to believe that our own personal opinion which we held of the narrowness of viewpoint of the group of individuals referred to, had not rested altogether on premises based on personal or professional prejudice.

The story is a simple one. A friend lost a dog. The animal was not pedigreed, but because of its affection and temperament, had become very dear to the husband and wife, who were in well-to-do circumstances. The dog, a wire-haired terrier, disappeared, was advertised for in the papers and police bulletins, and a reward of one hundred dollars was offered for the return of the animal. This advertisement brought to the wife a post card dated Los Angeles, on the reverse side of which was printed the following gem:

"New York Antivivisection Society  
"1860 Broadway, New York City

"If you have not already found the dog advertised, we suggest that you search in the nearest medical laboratory, as animals are often stolen and sold for experimental purposes. Do not let them bluff you off, but be persistent.

"You may be a believer in vivisection, in which case you would be as willing to have your own dog sacrificed as another; but, if not, you will justly wish to save your dog from torture."

This post card was brought to the writer by the wife of his friend, with the request for aid in obtaining permission to go through the medical institutions of the city, in order that she might be certain that the dog was not being "vivisected."

Because at times the activities of the organized antivivisectionists have brought into existence ordinances and laws, based on what might be called at best only kindly or maudlin sentiment; but which once on the statute books become inimical factors against the progress of medical science and of human welfare, this example of

how antivivisectionists pursue their work, is here given space.

The statements in the post card speak for themselves. It is left to our readers to form their own opinions of what they would call the persons sending out such stuff.

### EFFECTIVE SANITATION

The passing of diseases that once were a scourge to mankind is placidly accepted today, as are accepted the marvelous advances that have been made in the scientific field. The airplane, the radio, and the automobile all dependent on the development of deductive reasoning, are no longer marvels. They have become merely present-day accessories of living and the changes they have wrought in our lives are so integral and vital that with difficulty this generation visualizes the conditions prior to their coming.

The years that preceded the germ theory of disease and the empirical treatments that were based on false deductions concerning the disease cause are pitiful in their revelation of the handicap under which man then labored. The disheartening death rate put a discouraging burden on the old-time doctor which he apparently never shirked. Sacramento takes pride in the fact that while thousands fled from the city during the plague of 1856, not a doctor deserted his patients. Seventeen physicians died during the tragic epidemic. Only a man of philosophic mind could have labored against such odds and such discouragement.

A recent review of the diminishing typhoid rate in New York City gives a graphic picture of former health conditions and of the debt that the world owes to Pasteur. A study of that report reveals that of every 100,000 population, in 1868 thirty-six died of typhoid fever; in 1880 twenty-five; in 1890 twenty-two; in 1900 twenty-one; in 1910—when pasteurization of milk and chlorination of water was commenced—ten; in 1920—after these measures had been perfected, the drop was sudden—but two in every 100,000 died, and in 1921 but one. This represents seventy-eight deaths in a population of almost 6,000,000 as against 432 in a city one-fifth that size. When a method for the disinfection of carriers shall have been perfected, and the present unidentified carriers shall have died, when immunization by prophylactic vaccine shall be as requisite to a traveler, as is his passport, the total extermination of this once-dreaded disease should become a possibility. Typhoid cases will then be as rare in teaching hospitals as are now yellow fever cases.

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For Broad Learning.—The physician who is not also a scholar may be a more or less successful practitioner, but his influence will be confined, his methods mechanical, and his interests narrow. The doctor, the lawyer, and the minister of religion can do but inferior work, unless to a knowledge of their several sciences they bring the insight, the wide outlook, and the confidence which nothing but intimate acquaintance with the best that has been thought and said can confer. The more accomplished the specialist the greater the need of the control which philosophic culture gives.—*Bishop Spalding.*

A Medical Information Bureau.—A Medical Information Bureau has been established by the New York Academy of Medicine and the Medical Society of the County of New York, with headquarters in the building of the New York Academy of Medicine, 2 East 103rd Street, New York. Telephone, Atwater 4700. The objects of the bureau are set forth in a printed announcement as follows:

"The recent and phenomenal progress of modern medicine, and particularly of preventive medicine, necessitates the development of a direct and intimate channel of communication between the practitioner and the community. This is essential, not only that the public may learn to take advantage of the constant advances of modern medicine, but to the end that it may be protected against the hordes of charlatans, quacks and misguided zealots who, strange to say, thrive more than ever in this day of presumptive enlightenment.

"In appreciation of the needs of our day and society, the New York Academy of Medicine and the Medical Society of the County of New York have established a joint Medical Information Bureau. The aims of this bureau are to facilitate the dissemination of authentic information on medical and public health matters, to stem and curtail quackery and to promote a better understanding between the public and organized medicine.

"The Medical Information Bureau is supervised by a committee representing the Academy and the county society. It is served by a body of over one hundred consultants competent to give expert opinion on a variety of questions relating to their specialties. The full resources in judgment, knowledge and experience of the medical profession in New York are "on tap" to aid its purpose.

"The bureau's first obligation is to serve the press of the city; and it has been organized in such a manner as to facilitate this service. It hopes, however, that every organization concerned with the dissemination of information to the public as a whole, or to select groups, will feel free to call upon it for the type of assistance it is ready to give."

The Kings County Medical Society established a similar publicity service at its meeting of March, 1924, when the entire program was on the relations of the medical profession to the press. The papers that were given at the meeting discuss all phases of the relation of the physicians to the press, and are published in the October, 1924, issue of the *Long Island Medical Journal*. The speakers included Arthur Brisbane, and the editors of the leading daily newspapers of Brooklyn. The editors and the physicians were agreed on the desirability of the appointment of a committee of doctors who would be ready to grant interviews to newspaper reporters on any medical subject, whenever their opinion should be asked.

A committee, called the Press Reference, was appointed at the meeting, and has functioned actively ever since. The leading newspapers have recognized the committee to such an extent that they await its opinion before publishing an important article on a new subject, such as the value of the Johns Hopkins investigation into common colds.

Another example is that of publicity in the cancer campaign. The newspapers of Brooklyn took little notice of the copy sent to it by the Cancer Committee, until the Press Reference Committee approved the copy and requested the newspapers to publish it. The result was extensive publicity in the press throughout all Long Island.—*New York State J. Med.*

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Public Health.—"Public health is the foundation on which reposes the happiness of a people and the power of a country. The care of the public health is the first duty of a statesman."—*Disraeli.*



# MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

## Bacteriology

**Prevention of Peritoneal Adhesions.**—Many operative techniques and therapeutic methods have been advocated to prevent the formation of peritoneal adhesions. One of the latest tests of proposed methods is by Ochsner and Mason<sup>1</sup> of the department of surgery, Tulane University, New Orleans. These investigators report very favorable results from the use of papain and other vegetable digestants.

Ochsner and Mason found that extensive peritoneal adhesions are readily produced in experimental animals by combined mechanical and chemical irritation of intestinal surfaces, and that an intraperitoneal injection of papain will almost invariably prevent the formation of such adhesions. They also found that if control or untreated animals are relaparotomized after the formation of extensive adhesions and the adhesions are then broken up, the application of papain prevents their re-formation in the majority of cases. In the few animals in which adhesions re-form, the new adhesions are fine, veil-like and easily broken.

W. H. MANWARING, Stanford University.

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## Tuberculosis

**Tuberculous Infection.**—The development of tuberculosis depends upon several factors which vary with each individual who develops active symptoms. There must of necessity have occurred infection in each person. This may vary because of degree of virulence of infecting organisms, or because of the amount of infectious material. Unless the virulence and amount of infection is such as to overwhelm the resistance of the individual, symptoms are not produced as the immediate result of infection. Following this stage or condition of primary infection, the stresses to which the individual is subjected are determining factors as to whether or not active tuberculosis will develop to a degree which will produce symptoms, or tissue changes through which the diseased condition may be recognized. The stresses may be bacterial, either excessive infection of tubercle bacilli repeatedly received at more or less frequent intervals, or infection by other organisms, as, for instance, pyogenic bacteria, which lower resistance. This infection may involve the areas of healed tuberculous infection or may lower the patient's general resistance. The stresses of environment may be determining factors. Pathologic changes, as degenerative proc-

esses of tuberculous foci, accompanied by dissemination of bacilli into other tissues, may occur. Dr. Allen Krause, in the last paragraph of "The Pathogenesis of Disease," which appeared in the August number of the *American Journal of Tuberculosis*, brings out briefly the influence of several factors.

"We suspect that if we could get at the truth we should find that what is most effective in bacillary contact, quantitatively considered, are opportunities for repetition of infection, and particularly the intervals of time between repeated infections. Experimental work, which would take too long to relate, suggests this strongly, and in summary leads to an opinion something as follows: A prolonged and more or less continuous exposure to tuberculosis, with its chances for frequently repeated intakes of bacilli, and especially as intervals between successive infections become shortened, is decidedly more momentous as to pathogenesis than single casual or occasional contacts, no matter what the dosage.

"*Comment.*—As we follow the many varied threads of this complicated and tangled skein that leads to the pathogenesis of tuberculosis, we should ever keep in mind that between the time of reception of offending bacilli and that of pathogenesis the natural history of tuberculous infection rarely shows an uninterrupted course. Even infected infants who fall ill, and only the lesser number do, will be found to go weeks and months with inactive infection before breakdown. The child will go months and years; the adult may go years and decades. If we had no other facts to guide us, this circumstance alone should teach us that, in the majority of cases, neither native character of tissue nor kind nor "dosage" of bacillus is decisive in establishing the pathogenesis of tuberculosis, contributory though each may be to the end-result. The net result of this inquiry is to suggest that, in most cases, out of the first meeting of virulent germ and susceptible host, there results a tissue graft which, placed in the tissues of the animal, man, living a normal existence, because of a prompt acquisition of allergy and immunity would go the way of limited development and at last obsolescence. But civilized man has drifted far from the life of man the animal, and in the journey has been and is subjecting his engrafted tubercle to varied forces that promote its growth and spread. Back of every awakening of tubercle, back of every nurturing of its evolution, is an experience or succession of experiences that have promoted its continued existence and progression. Common observation teaches us that from the physiologic standpoint, such an experience is characteristically of a stressful nature. Whatever may be stressful is to be viewed in its

relations to the individual. The ultimate solution of the problem of pathogenesis of tuberculosis in human beings must be sought wherever the sick human being is found, for it is what he has done and what has happened to him since infection that have been most momentous. Environment, individual experience, have swung toward or away from pathogenesis the balance fixed by initial meeting of germ and host, and soon affected by allergy and immunity."

The recognition of the foregoing principles and their application in the efforts to control tuberculosis have been important factors in the reducing of morbidity and mortality.

CHARLES C. BROWNING, Los Angeles.

### Medicine

**Blood Pressure Curves.**—Fahrenkamp has published (*Die Psycho-Physischen Wechselwirkungen Bei den Hypertonieerkrankungen*, Springer & Co., Berlin), a detailed study of blood pressure curves made on a series of eight hundred patients, and followed for long periods of time.

The pressure readings were recorded morning and evening for weeks and months; his deductions are made from the curves drawn after this method of procedure.

The normal individual has a lower pressure in the morning than in the evening. Patients with increased pressures present many variations in the curves made by Fahrenkamp; he attempts to classify these curves and to make deductions from them.

Three types of blood-vessel disease are considered:

1. Essential hypertension, *i. e.*, that group of individuals who have a persistently elevated blood pressure without clinical or laboratory evidence of blood vessel or kidney disturbance.

2. Hypertension with arteriosclerosis.

3. Hypertension with kidney involvement.

Fahrenkamp finds that blood pressure curves from patients with essential hypertension do not remain elevated persistently, but that the periods of elevation are followed by periods in which the pressure is much decreased. Vascular crises occur which account for the periods of elevation. It is during such periods that danger of a ruptured vessel might be anticipated. In instances of hypertension, however, blood vessels are not diseased; it has been found experimentally that a pressure of 1300 millimeters is required to rupture a healthy small artery, hence these patients stand the increased pressures which may occur at the time of vascular crises.

In instances of hypertension with arteriosclerosis, study of the pressure curves demonstrates likewise that the persistent elevation of pressures is not nearly so frequent as has been thought; there are periods in which lower pressures occur, and these lower pressures may persist for long periods of time.

In the third group—hypertension with kidney involvement—only two subheads will be men-

tioned here: glomerulonephritis; malignant hypertension.

In acute glomerulonephritis the first clinical evidence has been found to be an increase in blood pressure, with little or no variation between morning and evening readings. This elevation persists so long as the inflammatory condition is active in the kidney, and begins to drop only when the kidney condition improves. In the event that the acute glomerulonephritis does not heal completely, but persists as a chronic glomerulonephritis, the blood pressure curves give evidence of this fact. During an exacerbation of such a chronic glomerulonephritis the morning and evening pressures are again elevated, and following the recrudescence the pressures do not drop to normal, since chronic damage remains in the kidney.

In the malignant type of hypertension the morning and evening pressures are found to remain continuously high, in some instances with little or no daily variation. In such instances, where a variation between morning and evening pressures does not appear, or where the pressures do not fall gradually within a period of six weeks, a poor prognosis is frequently given, and found to be justified.

The advisability of taking such frequent readings on patients with increased blood pressure in private practice is questionable. "The psychic trauma of blood pressure determinations" is a matter of real importance. In routine treatment of hypertension patients, one is certainly not justified in making such frequent readings. In hospitalized patients, where frequently the increased pressure is an incidental finding, and has not been responsible for the hospitalization, an explanation to the patient which would alleviate worry over the repeated readings might afford opportunity for study of such blood pressure curves. In this manner corroboration of Fahrenkamp's findings, or the deduction of further facts, might result.

FRANKLIN R. NUZUM, Santa Barbara.

### Pediatrics

**Exanthem Subitum.**—Recognized by Zahorsky in 1910 as a disease entity and given its present name by Veeder and Hempelmann in 1921, this disease is still surprisingly unfamiliar to the profession at large and commonly goes undiagnosed. It is by no means a rare disease. Recently a series of twenty-five cases, all from San Francisco, has been reported as having been seen within a period of four years. It is of great practical importance to the practicing physician and to his reputation that he should be able to recognize it or at least suspect its presence. Occurring in most cases between the ages of six months and two years, it is characterized by a high, continuous temperature lasting approximately four days, the absence of pathological signs, no acute enlargement of lymph nodes, a critical fall in temperature followed within twelve hours as a rule by the appearance of a morbilliform rash mainly on the trunk, neck and proximal portions of the extremities, and complete recovery



without complications. It is accompanied in nearly all cases by leukopenia and a marked relative lymphocytosis. An incorrect diagnosis of rubella is often made. The infecting organism, mode of propagation and period of incubation are unknown although there is some reason to believe that the last is short. It is probably not very easily contagious. It has recently been pointed out that, while severe symptoms are exceptional, there is a considerable proportion of cases in which generalized convulsions, sometimes prolonged and severe, may accompany the onset.<sup>1</sup>

The practitioner having to treat an infant with high fever of obscure origin will do well to remember the disease. Parents are apt to be in a state of great alarm when a baby has a continuous temperature of 104 degrees or more without obvious cause, especially when it is accompanied by a sharp convulsion, and will be grateful to the practitioner who can reassure them with the information that the temperature will drop within a few days and that the condition is not a serious one. The appearance of the rash after the crisis, as predicted, serves to confirm the diagnosis and further reassure the family. A blood count is essential before the physician can hazard a diagnosis.

HAROLD K. FABER, San Francisco.

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#### Urology

**Catheterization of the Bladder.**—To catheterize, or not to catheterize?—that is the question which has arisen many times when a surgical case is unable to void. Frequently a patient is catheterized once or twice, then left to void the best he can. Soon symptoms of cystitis develop, and the nurse or intern who catheterized the patient is blamed for infecting the bladder by faulty technique. But was this the cause of the infection? Rovsing<sup>1</sup> injected great numbers of virulent bacteria into a normal bladder, and found that they were passed out in two or three hours without causing any change in the bladder mucosa. By experimental evidence Hartung<sup>2</sup> demonstrated that there must be some predisposing cause before bacteria can cause infection of the bladder mucosa.

By clinical observation it has repeatedly been shown that it is retention or overdistention rather than catheterization which causes bladder infection.<sup>3-5-6-7</sup> A bladder may be repeatedly catheterized, and unless there is retention it will not become infected, but if retention is present the most rigid asepsis in catheterization will not prevent infection.<sup>3</sup> In the management of the surgical case with retention, every effort, such as hot applications, antispasmodics, etc., should be used to get the patient to void normally. But if catheterization is necessary it should be repeated every six or eight hours until the patient voids, and after that, continued once daily until he is able to empty the bladder completely at each urination. Usually

in a case which has had retention a residual urine persists for some time after the patient begins to void, and as this residual will cause a cystitis it is important to carry out daily catheterization until there is no residual urine present,<sup>4</sup> followed by installation of an antiseptic solution, or by irrigation if the urine is purulent. Necessity for catheterization is greatest after pelvic surgery and after parturition, as in these cases postoperative cystitis is a very common complication.<sup>6</sup>

Chronic retention, such as occurs in elderly men with prostatism, is handled somewhat differently. The bladder should be emptied gradually, taking three to five days to complete the emptying, in order to prevent too sudden relief of the back pressure on the kidneys, which release may cause an acute congestion and edema, and result in an anuria and uremia that is often fatal. Because of the paralyzed condition of the bladder wall it is important that not more than a few cc.'s be drawn off at first, the best method being one in which the retention catheter is connected by a tube to a receptacle which can be raised and lowered to allow the pressure in the bladder to remain the same.<sup>8</sup>

Most authorities agree that cases of retention due to a paralyzed bladder from a central nerve lesion should not be catheterized unless there is infection present or discomfort from bladder distention.<sup>9-10</sup> Many of these cases will never return to normal, and if left alone will not become infected, and some will develop an involuntary emptying of the bladder.

In summarizing: retention, rather than catheterization, causes cystitis. Every postoperative case which it is necessary to catheterize should continue to be catheterized until no residual urine is present. Gradual decompression is carried out in the chronically distended bladder. Cases of "cord bladder" are not catheterized unless there is distress from the retention, or unless infection is present.

ROGER W. BARNES, Los Angeles.

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# STATE MEDICAL ASSOCIATIONS

## CALIFORNIA MEDICAL ASSOCIATION

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### OFFICIAL NOTICES

**Papers for Annual Meeting.**—Any member who wishes to present a paper at the annual meeting of the California Medical Association, to be held at Coronado, May 6 to 9 inclusive, should submit his name and an abstract of his paper *at once* to the secretary of the proper section. On advertising page 4 of each issue of CALIFORNIA AND WESTERN MEDICINE will be found the names and addresses of all section officers.

Papers must be in the hands of section officers by the 15th of February of each year, at which date completed programs are furnished the office for publication.

Rules governing clinical and research prize papers may be found on page 201 of the September issue of CALIFORNIA AND WESTERN MEDICINE.

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**The 1929 Directory.**—December 15, the closing date for printing of the 1929 directory should find the state office supplied with every change of address that has been made during the past year, even to the correct room number of those physicians whose offices are in the large metropolitan medical office buildings.

Each year we fondly hope that the name of no member will either be omitted, or misplaced or misspelled. To that end corrections are made daily, the entire card index of members is checked with the directory. Members whose journals are returned for change of address are requested by return mail to supply the proper address which on receipt is immediately changed on the mailing list and the directory. And despite every precaution no directory has yet been perfect. A misspelled name gets the most vindictive comeback. A Lewis that should have been Louis; a Myer that should have been Meyer, what insult greater!

Help us attain our goal—one perfect directory! But send your criticism or your correction in a friendly spirit. Our few errors have at least been unintentional. And may we hope that the new members who join in January, February or March of 1929, and whose names are therefore not included, will feel less deeply aggrieved than some in former years. Remember that the directory goes to press on December 15 and cannot therefore list members who join the Association after that date.

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**Index to Volume XXIX.**—The index to volume XXIX, of which this December issue is the concluding number, will be found immediately following advertising page 72.

### COMPONENT COUNTY SOCIETIES

#### ALAMEDA COUNTY

The regular meeting of the Alameda County Medical Association was held on October 15 at 8:15 p. m. in the auditorium of the Ethel Moore Memorial Building. The program was presented by the San Francisco County Medical Society, each paper being

illustrated with lantern slides. The first speaker, H. Clare Shepardson, discussed the relation of arteriosclerosis to diabetes and pointed out the fact that the advent of insulin had increased life expectancy for the diabetic. The fact that these patients live longer with their disease has injected problems which heretofore have not existed. Arteriosclerosis is the most important of these and is responsible for the death of a large per cent of diabetics today. Dr. Zera E. Bolin gave a most interesting review of the anatomy and physiology of the reticulo-endothelial system. The doctor pointed out the wide distribution of the system, laying particular emphasis on that important portion of it which is found in the spleen, lymph glands, and liver. Doctor Fleming discussed spinal cord tumors, with particular reference to the differential diagnosis, pointing out the importance of spinal fluid examinations from both cisterna magna and from the lower portion of the canal, touching lightly upon the possible uses of lipiodol in the diagnosis of these conditions.

Following the scientific program Doctor Keenan gave a very interesting talk on the development of the San Francisco society's new home.

GERTRUDE MOORE, *Secretary*.

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#### ORANGE COUNTY

On November 6, a dinner meeting of the Orange County Medical Association was held at the Elks Club, Anaheim, at 7:15 p. m., with twenty-one members and three visitors present.

An excellent roast duck dinner was enjoyed by all. The first speaker was Dr. W. M. Duffield, state counselor of this district, who spoke concerning the work of the medical association.

Dr. James F. Percy of Los Angeles gave an interesting address on "Breast Carcinoma—Results Following Cautey Surgery," and illustrated his talk with a motion picture. He reported favorable results on a number of cases considered by others as inoperable. He pointed out that heat is the best instrument against the cancer cell, and also told of many evident spontaneous cures as a result of high fevers. The two complications following cautey surgery are (1) hemorrhage and (2) fever. The wound heals by second intention.

At the business meeting Doctors A. E. Chase, W. P. Baker of Santa Ana, G. W. Olson, Orange, and W. W. Davis, Brea, were elected to membership.

F. HAROLD GOBAR, *Secretary*.

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#### SAN BERNARDINO COUNTY

Minutes of the meeting of the San Bernardino County Medical Society held at the County Hospital on November 6 at 8 p. m.

The meeting was called to order by the president at 8:15.

Propositions for membership were as follows: Doctors H. G. Gentry, J. W. Whitsett, C. A. Love, Jr., T. I. Zirkle, C. Hadley, F. C. Clough, F. F. Williams, Jr., R. H. Bandelier, E. J. Hiscox.

All the above were admitted by a unanimous vote of the society.

A communication from the American Society for the Control of Cancer was read. A communication from the Aetna Life Insurance Company regarding protection afforded by the group malpractice policy was read. The question of employment under the



Medical Service Corporation of Los Angeles was summarized as follows: it was stated that suit has been brought against this corporation for practicing medicine without a license. Until this suit is decided, disciplinary action will not be taken, but that, in the interval, members of this society should not contract for employment with this company.

Election returns were given at intervals.

There were thirty-three present.

The program of the evening consisted of a summary of acute osteomyelitis by Dr. C. J. Hilliard, chief of the surgical staff, followed by an exhibition by Dr. K. Dole, of the orthopedic division of three cases of chronic osteomyelitis of children operated upon, following Orr's technique. Owing to the length of this part of the program and to the discussion which followed it, the exhibition of medical cases was postponed.

Doctor Bowers of Los Angeles read a paper on "Traumatic Neurosis." This was discussed by Doctor Parkinson of Los Angeles and Doctor Moseley of Redlands.

E. J. EYTINGE, *Secretary*.

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#### SAN DIEGO COUNTY

The October meeting of the staff of Scripps Memorial Hospital was devoted to a discussion of physical therapy in its various aspects. The discussion was opened by a very brief talk by Mr. Louis Carlson, the director of the physical therapy department, describing the complete equipment and the various results to be reasonably expected from the application of physical therapy. Several members of the staff discussed their results with diathermy and other forms of electricity and radiation, but massage and hydrotherapy, which have a wide reach of therapeutic use, received but little recognition. It would seem as though our education along physical therapy lines was received largely from the apparatus salesman.

In the death of Dr. John C. Yates the San Diego County Society has lost one of its most valued members. Loyal to his friends and staunch supporter of what he considered right, he had much to do with the safe and sane development of organized medicine in California during the past two decades.

On November 2 the San Diego Academy of Medicine presented as a special treat Professor F. d'Herelle of Yale Medical School, who recently delivered the 1928 course of Lane Lectures. The doctor gave an illustrated discourse on bacteriophage explaining carefully its origin, nature and mode of preparation. He then, by means of the lantern, charted his results in a wide variety of medical and surgical conditions due to infection. To the careful listener it seemed as though the conquest of disease due to infectious organisms has been accomplished.

During the last week in October the remodeled and amplified Scripps Metabolic Clinic was opened for inspection. It is a dream of beauty and utility, a composite of the architect's skill, the decorator's art, and the highest equipment of modern diagnostic science. Director Sherrill has reason to be congratulated upon achieving this fine addition to San Diego's medical buildings. We hope later to give to this journal a more detailed description of this clinic.

ROBERT POLLOCK.

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#### SANTA BARBARA COUNTY

Regular meeting of October 8 of the Santa Barbara County Medical Society was a dinner meeting held at the University Club at 7 p. m., President W. D. Sansum presiding. Thirty-five members were present.

The minutes of the previous meeting were read and approved.

Letter of appreciation from William J. Cooper, superintendent of public instruction, was read.

Letter from Dr. F. T. Foard, United States Public

Health Service, in reply to inquiry in the Crandall matter was read.

Application of Dr. Otto L. Munch, resident at St. Francis Hospital, was read and ordered turned over to the censors.

Notice of meeting of the California Medical Society November 9, 10, at which Dr. Maude Slyc will be present, was read.

Dr. G. S. Lovgren told in a very interesting manner of his trip to England, Belgium, Germany, and Switzerland. He commented on the condition of the people, the hospitals he visited, and the wonderful trip up the Rhine, the beauties of the Swiss mountains and lakes, etc.

Dr. F. R. Nuzum also gave an extended talk on his trip to France, Austria, and Italy, dwelling especially on his stay in Vienna, the hospitals, professors and their teaching.

Both talks were wonderfully interesting. A clear view of the advantages and limits of foreign study was given.

After discussion and questions, the meeting adjourned.

P. C. MEANS, *Secretary Pro Tem*.

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#### TULARE COUNTY

The regular monthly meeting of the Tulare County Medical Society was held at Motley's Café in Visalia.

Members present were Doctors Preston, Loper, Brigham, Groesbeck, Bond, Lipson, Rivin, Campbell, Tourtillott, Miller, Seligman, Ginsburg, Banks, Betts, McSwain, Hicks, Zumwalt.

Following dinner, the meeting was called to order at 7:45 by President Tourtillott.

The minutes of the last meeting were read and corrected as to detail by Doctor Hicks.

It was voted that the secretary order new physicians' auto emblems, marked with the name of the Tulare County Medical Society.

Dr. William G. Carson of Cutler was elected to membership.

Dr. Hiram E. Miller of San Francisco was the guest of the society, and gave us a very interesting talk on "Recent Advances in the Treatment of Skin Diseases," his talk being illustrated by lantern slides. Discussion followed.

Meeting adjourned at ten o'clock.

HORACE G. CAMPBELL, *Secretary*.

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#### YUBA-SUTTER COUNTY

The Yuba-Sutter County Medical Society met in the Hotel Marysville, Marysville, at 8 p. m. October 9, in regular session, Dr. P. B. Hoffman, president, presiding.

The doctors of Marysville, Yuba City, Hammonton, Wheatland, and other sections were nearly all present. This full attendance is a pleasing customary habit of the members who are taking a splendid interest in the society.

Dr. F. W. Didier, secretary of the society, was absent visiting in New York and other eastern cities during the past month.

Dr. Charles Raymond Illick was a visitor, who is at present attending F. W. Didier's practice in Wheatland during the latter's absence. Doctor Illick intends, upon leaving, to open offices in permanent location at Santa Paula. The doctor has been connected with the Latin-American Hospital in Puebla, Mexico, during the past eight years and has just recently come to California.

Dr. Granville S. Delemare is visiting in New York and other eastern cities.

It was moved by Dr. Allen E. Gray and seconded by Doctors George W. Stratton and Smith McMullin, with appropriate remarks, that Dr. J. H. Barr be made

an honorary member of the society, which motion was passed by a unanimous vote.

After the business of the meeting, Dr. Samuel H. Hurwitz, 490 Post Street, San Francisco, spoke extemporaneously on the subject of "Asthma and Hay Fever." The doctor was thoroughly conversant with his subject, and a very interesting speaker indeed. He emphasized particularly the rôle which infection and sensitization play as causes of certain types of asthma. The value and limitation of skin tests in diagnosis was stressed. The part which the rhinologist should take in the treatment was commented upon at length.

Failures in treatment are the result, in part, of two causes: first, that the hypersensitive constitution is inherited and therefore not subject to modification; second, because of the difficult problem of secondary nasal and bronchial infection. The paper was briefly discussed by several members.

SMITH McMULLIN, *Secretary Pro Tem.*

## CHANGES IN MEMBERSHIP

### New Members

Los Angeles County—W. B. Kern, Ernest E. MacLeod, Kenneth Townsend, Los Angeles.

Orange County—A. E. Chase, Willis P. Baker, Santa Ana; W. W. Davis, Brea.

San Diego County—Frances P. Elliott, Walter Gavey, William E. Sisson, San Diego.

San Francisco County—Lawrence Reid Custer, Jessie Lunt Preble Delprat, Kenneth D. Gardner, Samuel Jerome Hurwitz, Gregory Isakson, Morris Korshet, Leon Melkonian, Warren E. Page, Werner Proesch, Robert Spencer Stone, Peter A. Tobin, San Francisco.

Tulare County—William G. Carson, Cutler.

Yuba-Sutter County—John W. Newton, Hammon-ton.

### Transferred Members

J. Emmet Clark, from Stanislaus to Alameda County.

Herbert M. Every, from San Francisco to Alameda County.

Herbert R. Stolz, from Sacramento to Alameda County.

### Deaths

**Bryson, Charles W.** Died at Los Angeles, November 3, 1928, age 63 years. Graduate Keokuk Medical School, Iowa, 1882. Licensed in California, 1886. Doctor Bryson was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

**Ehle, Hiram B.** Died at San Jose, October 29, 1928, age 69 years. Graduate of Rush Medical College, Illinois, 1888. Licensed in California, 1888. Doctor Ehle was a member of the Lassen-Plumas County Medical Society, the California Medical Association, and the American Medical Association.

**Goodrich, William Ward.** Died at Coalinga in September, 1928, age 51 years. Graduate Drake University Medical College, Iowa, 1900. Licensed in California, 1920. Doctor Goodrich was a member of the Fresno County Medical Society, the California Medical Association, and the American Medical Association.

**Ostroff, Henry.** Died at San Francisco, November 11, 1928, age 66 years. Graduate Central College of Physicians and Surgeons, Indiana, 1897. Licensed in California, 1922. Doctor Ostroff was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

## OBITUARIES

### John Caldwell Yates 1874-1928

Dr. John Caldwell Yates was born in Illinois and received his preliminary education in the Peoria High School and one of the minor colleges of the state of Illinois. He was graduated in medicine from Rush Medical College, Chicago, in 1897, shortly afterward taking charge of the Industrial Mining Hospital at Ironwood, Michigan, where he had a large and varied experience in general medicine and surgery. He left Ironwood in 1906, took postgraduate work in Chicago and New York and followed this during 1908 and 1909 by clinical work in dermatology in the various medical centers in Europe. Until his death Doctor Yates specialized in dermatology exclusively. For several years Doctor Yates has been consulting dermatologist to the Santa Fe Railway at San Diego.

On returning from Europe in 1910 he located in Peoria, Illinois, but, because of the illness of his



daughter, moved two years later to San Diego in December of 1912. He immediately was accorded high standing in the local profession, being elected president of the county society in 1916. In 1918 he became vice-president of the state medical society and councilor-at-large, later representing the First District on the state council.

Doctor Yates was again honored by the medical profession of California by his election as president during the fiscal year 1920-1921. In the latter year he was appointed by the Governor a member of the State Board of Medical Examiners, serving thereon until 1926.

Doctor Yates was widely read both in general literature and in medicine, and his mature judgment in business affairs was of great service to the state society during his service on the council.

A Mason of the highest order in both the Scottish and York rites and a member and past potentate of



Al Bahr Shrinic, Doctor Yates' funeral service was conducted by the Knights Templar.

He leaves a widow and a daughter and son to mourn his loss. To them a host of friends in San Diego and throughout California extend their heart-felt sympathy.

John Yates' intimate associates ever found him a wise advisor and true friend. They mourn his loss and cherish his memory.

C. Benson Wood  
1878-1928

C. Benson Wood died at the age of fifty years at his home in Los Angeles on October 23, 1928, from cardiac disease. He was actively engaged in his profession to the last day.

Doctor Wood was born in Kingston, New York. His education was obtained at the University of Pennsylvania and in New York City, graduating from the New York Homeopathic Medical College in 1903. He was associated with his uncle, Dr. John Garrison, of that city, for three years, where he received his first training in otolaryngology.

He then came West and located in Seattle, where he was in practice until the advent of the World War. He was among the first to offer his services and become a major in the United States Army. At the close of the war he was commanding medical officer at Fort McArthur.

Doctor Wood maintained his interest in military life in the California National Guard, being surgeon and instructor attached to the One Hundred and Sixtieth Regiment. He was honored with military rites at the funeral service.

In 1919 he located in Los Angeles and became associated with Doctors Browning and Howson.

He was especially interested in diseases of the larynx articles on which formed his chief contribution to the study of tuberculosis. He had a keen sense of observation and a mind for detail; qualities that made him a skilled diagnostician.

Doctor Wood was a member of the attending staff of the California Lutheran Hospital and head of one of the ear, nose, and throat services at the Los Angeles General Hospital.

He was an active participant in the local and Pacific Coast medical organizations. He served as secretary of the Pacific Coast Oto-Ophthalmological Society in 1923, and in 1927 he became president of the Eye and Ear Section of the Los Angeles County Medical Association. It was in these various capacities that he demonstrated his remarkable leadership and executive ability.

It was Doctor Wood's delightful geniality and social charm that drew people to him and put him in an approachable position, not only to the professional men, but to all who knew him.

Besides being a member of the leading medical organizations he was also a member of the Army, Navy, Marine Corps Association, Reserve Officers Association of the United States, and the University Club.

He leaves his widow, Mrs. Mignon Margaret Wood, and his daughter, Miss Helen Mignon Wood.

Children's Psychopathic Centers in Germany.—Germany has established consultation centers for psychopathic children in connection with all the children's bureaus of large cities. These centers are in charge of psychiatrists, who are aided by trained workers. They coöperate with the public schools, juvenile courts, and other child-welfare agencies. In some cities the children attend the regular schools, being treated in the consultation centers and visited by the trained workers. Special kindergartens and day centers for such children have been established in other cities, while in still others the need of a changed environment and of placing the children in special institutions is emphasized.—U. S. Department of Labor.

NEVADA STATE MEDICAL  
ASSOCIATION

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.....Trustees

NEWS ITEM

The bulletin of the Nevada State Board of Health, Carson City, Edward E. Hamer, state health officer, sent out on November 1, contains the following interesting information on tularemia, which it characterizes as a disease of wild rabbits and humans:

The *Bacterium tularense*, the cause of tularemia, was first discovered by McCoy and Chapin in 1912 as the cause of a fatal epidemic among ground squirrels in Tulare County, California. The first human case, confirmed years later by laboratory tests, was reported in Arizona in 1917. Apparently the first cases in Nevada were recognized by Dr. S. R. Clark, Battle Mountain, and Dr. A. J. Hood, Elko, about 1912. The presence of the disease in Nevada was confirmed in the laboratory by Dr. Henry Albert, director of the State Hygienic Laboratory, Reno, in 1926. Recently, at the request of Dr. Walter B. Coffey, chief surgeon Southern Pacific Railroad, and in coöperation with Dr. E. E. Hamer, state health officer, an investigation was made by Dr. K. F. Meyer and Dr. J. C. Geiger of the George Williams Hooper Foundation for Medical Research of the University of California, San Francisco. These investigations proved that the disease is endemic and widespread in Nevada. They were able to obtain records from fifteen physicians (Dr. N. A. Paradis, Dr. F. H. Harper, Sparks; Dr. George Magee, Dr. William Edwards, Yerington; Dr. Charles Secor, Dr. R. P. Roantree, Dr. A. J. Hood, Dr. John A. Warden, Doctors Shaw and Haas, Elko; Dr. E. H. Hawkins, Dr. S. R. Clark, Battle Mountain; Dr. George F. Pope, Dr. Charles E. Swezy, Dr. E. D. Giroux, Winnemucca) of 284 cases of which forty-one, or approximately 14 per cent were proved by blood serum agglutination tests. No deaths were reported in the Nevada series.

The cases reported have occurred principally among ranchers, cattle and sheep men, physicians and laboratory workers, market men and housewives. In most cases the occupation has brought them into contact with rabbits or insects that have bitten rabbits or other rodents, or with the germ in the laboratory. Most of the cases have been adult males. Such is to be expected considering the occupation.

The disease is widespread. It has been reported from twenty-five states extending from the Atlantic to the Pacific Coast and from the Canadian to the Mexican border.

The disease also occurs in Japan where it goes under the name of Ohara's disease. Cases of the disease have been reported in every month of the year. In the West, however, most of the cases have occurred during the warmer months—from May to October—when ticks and flies are especially numerous.

The *Bacterium tularense* is found in the skin sores of the disease, in the blood, and in the internal organs. It can be grown on artificial media in the laboratory. It does not produce spores, hence it is easily killed by heat or disinfectants. Ticks and rabbits are the great natural reservoirs of the disease. It appears unlikely that the disease will be exterminated for many years. The germ is able to survive the winter in the tick, and may be transmitted from stage to stage in the development of the tick, and is transmitted through the egg to the next generation. As the germs are readily killed by heat, there should be no danger from eating properly cooked rabbits. The disease is not readily transmitted from man to man. The period of incubation is as a rule from two to five



days, although it might be as short as one day or as long as nine days.

The infection has never been found in nature in domesticated rabbits raised in rabbitries.

Rabbit meat thoroughly cooked is harmless for food and it has been found that a temperature of 56 degrees Centigrade or 133 degrees Fahrenheit kills the germ of tularemia. The ordinary disinfectants are effective. Rubber gloves should be worn by those who dress wild rabbits. Immune persons should be employed to dress them where possible. Infected rabbits, kept frozen for thirty days, have been found to be free from infection.

Symptoms. Any person, particularly after handling wild rabbits, or having a history of being bitten by insects, and who shows ulcers, enlarged and painful glands and persistent fever should be regarded as a suspicious case of tularemia. The diagnosis should be confirmed by the blood serum agglutination tests in the third or fourth week of the disease, the blood being drawn and sent to the laboratory as would be done for the Wasserman test. Likewise, the case must be immediately reported to the family physician and local health officer. So far there is no special treatment, no preventive vaccine, no curative serum and no drug which has proved to have any specific effect.

## UTAH STATE MEDICAL ASSOCIATION

WILLIAM D. DONOHER, Salt Lake.....President  
H. P. KIRTLEY, Salt Lake.....President-Elect  
M. M. CRITCHLOW, Salt Lake.....Secretary  
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....  
.....Associate Editor for Utah

### OFFICIAL NEWS

The Utah State Medical Association announces the birth of a new sister in the family. On the night of November 10, State Councilors William Donoher, Kirtley, Morrell, Goeltz, McDermott, and M. M. Critchlow went to Richfield to initiate the new San Pete-Sevier County Society. Details of the organization will appear in our next number. At this time we invite the secretary of the new society to send in news of their meetings in time to be edited and forwarded for publication in *CALIFORNIA AND WESTERN MEDICINE* before the tenth of each month. The editorial office welcomes regular reports from secretaries of Utah's component county societies. We especially urge Cache and Box Elder county societies to send reports of their activities. It is the earnest desire of this office to make the Utah department a reflection of the medical life of the state. We regret that Utah County is not reported this month. We are sure they are carrying on, but the secretary has failed to send in his communication in time.

The Holy Cross Clinical Association combined its last meeting with that of the Salt Lake County society meeting. This being a joint meeting a full report of the program will appear in the regular Salt Lake society meeting report.

The Wasatch Academy is holding its regular review classes each Thursday night in the rooms of the Inter-mountain Clinic, Deseret Bank building. Sessions will continue during the winter and early spring.

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It may be of interest to the members of the state association to learn that their editor has recently been accorded membership in the American Medical Editors' Association. The editor at least is gratified.

### COMPONENT COUNTY SOCIETIES

#### WEBER COUNTY

The meeting of the Weber County Medical Society was held October 24 at the Hotel Bigelow, President W. R. Brown presiding. Minutes of the previous meeting were read and approved.

The usual dinner preceded the meeting. Dr. R. L. Draper read the new constitution; a motion by Dr. Walter Whalen that the article as read be accepted, unless a question for discussion is raised, passed. It was moved that the constitution be accepted with several minor changes that were made by the members; this passed unanimously.

The question as to whether or not any member of the Weber County Medical Society was using narcotics was referred to the board of censors for investigation and action.

The program for the evening was as follows: Dr. Clarke Rich read a paper on "The Treatment of the More Serious Contagious Diseases," namely, measles, whooping-cough, diphtheria, scarlet fever. Dr. W. M. McKay reported on the contagious diseases encountered in Weber County during the last few years, methods of quarantine and control. These two papers were freely discussed by the doctors present. Dr. E. P. Mills read a very interesting paper on the "Pharmacological Action of Ergot and Its Derivative."

Meeting adjourned.

GEORGE M. FISTER, *Secretary*.

New Cancer Committees.—The new National Cancer Committee and Chicago Committee which were brought into existence at the time of the convention are not committees of the American Public Health Association. It is perhaps too early to say just what these new organizations are or may become, but in view of the possibilities it seems desirable that such facts as are known about them shall be brought to the attention of the American Society for the Control of Cancer.

Shortly before the convention a circular letter was sent to about twenty-five physicians of prominence asking them to accept membership on the national or local group, the letter being signed by Dr. Herman N. Bundesen, president of the American Public Health Association, and Dr. C. H. Mayo, chairman of "the committee." Dr. Bundesen was formerly Health Commissioner of Chicago and while occupying that position obtained much nation-wide publicity; he is now writing syndicate and other articles for the newspapers. Although he presided at the symposium, Doctor Mayo is not himself a member of the American Public Health Association.

The letter stated that one of the most important sessions on the program of the convention would be a special symposium on cancer, giving the names of the speakers and saying, "At this meeting we wish to announce the formation of a national committee which is to coördinate, if possible, and to pass on some of the present methods of cancer treatment." Actual clinical work would be performed at the Cook County Hospital and Oak Forest Sanatorium of Chicago under the direction of a proposed local committee whose members were to be: Doctors Frank Billings and Herman N. Bundesen, Mrs. Wilber R. Cubbins, and Doctors Gilbert Fitzpatrick, Ludvig Hektoen, L. L. McArthur, Joseph L. Miller, Frank Morton, William A. Pusey, John E. Tuite and Gideon Wells.

All the evidence collected by the local committee was to be submitted to the national committee for review and report.

The following is the personnel of the proposed national committee: Dr. J. C. Bloodgood, Baltimore; R. C. Coffey, Portland, Oregon; W. B. Coley, New York; Leonard Freeman, Denver, Colorado; W. D. Haggard, Nashville, Tennessee; F. H. Lahey, Boston, Massachusetts; Otis Lamson, Seattle, Washington; N. J. MacLean, Winnipeg, Canada; U. Maes, New Orleans; Angus McLean, Detroit, Michigan; James F. Peroy, Los Angeles, California; Emmet Rixford, San Francisco, California; and C. L. Starr, Toronto, Canada.—*American Control of Cancer*.



## MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: Comment on Current and Recent Articles in the Journal; News; Medical Economics; Readers' Forum; California State Board of Health; California Board of Medical Examiners; and Twenty-Five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

### NEWS

**University Extension Courses.**—Five courses in health education, child health and mental hygiene are to open in San Francisco and Oakland during January, according to announcement by the University Extension Division. San Francisco classes will be held at the Extension building, 540 Powell Street, while the Oakland class will meet at the Hotel Oakland.

Dr. V. H. Podstata, associate clinical professor of psychiatry in the University of California medical school, will give two courses in mental hygiene, one in San Francisco Wednesday evening, January 23, at 7 o'clock, and the other in Oakland the follow evening at 7 o'clock.

Dr. Richard Bolt, assistant professor of child hygiene, University of California, will begin instruction in health education Thursday, January 24, at 7 o'clock, and in child health on Tuesday evening, January 22, at 7 o'clock, both in San Francisco. Miss Laura Cairns, lecturer in the hygiene department of the division, is also to give a course in child health in San Francisco, the date of which has not yet been scheduled. All five courses offer university credit.

**Meeting of Railway Surgeons.**—The regular bi-monthly dinner meeting of the Northwestern Pacific Association of Railway Surgeons was held in the Union League Club, San Francisco, on November 17 at 7 p. m. Topic, "Tularemia and Coccidioidal Granuloma," Dr. W. T. Cummins, Southern Pacific General Hospital, San Francisco.

**The regular monthly staff meeting of the Southern Pacific General Hospital** was held on Wednesday, November 14, at 8:15 p. m. Dr. B. M. Dillon, intern, presented an abstract of the interesting literature for September and October; Dr. Earl N. Greenwood, "Physiotherapy and Its Uses"; Dr. Karl F. Meyer, "Rocky Mountain Spotted Fever"; essentials of the clinical and pathological data of the fatalities for October. Doctor Meyer then discussed the "Welch antitoxin" and the refined antipneumococcic sera.

**Foundation Given for Cancer Study.**—In memory of J. J. and Nettie Mack, the parents of Mrs. Roos, Mr. and Mrs. George H. Roos of San Francisco have given \$100,000 to the University of California to be used in the medical school for the study and relief of cancer and surgical diseases of the chest. With this fund will be established the J. J. and Nettie Mack Memorial Foundation, the interest only to be used for medical and surgical research.

The fund will be in charge of a governing committee as to its administrative research, this committee to be composed of members of the faculty of the medical school. The committee named is composed of Dean Langley Porter, Dr. Harold Brunn, clinical professor of surgery, and Dr. Howard Morrow, clinical professor of dermatology. If the problem of cancer should be solved the fund may be used for other purposes.

Roos is a graduate of the University of California, having received his degree in 1895. He and Mrs. Roos have planned a gift to the university for several years and have just announced its form.

"This marks the first step in our twenty-year program for the development of the medical school," says Dean Porter. "It is a recognition of the institution, the first of many we hope will follow. The Hooper Foundation will coöperate in the work of the foundation, and we trust we may be able to accomplish worth-while results with the funds that have been so generously furnished."

**U. C. Opens Radio Medical Program.**—In coöperation with the San Francisco County Medical Society, the University of California Medical School staff is now carrying on a weekly radio talk over KFRC, between 4:15 and 4:30 o'clock every Monday afternoon.

Also, Dr. H. M. F. Behneman, who is arranging the programs, will answer questions on general medicine between 4:30 and 4:35 following the regular talk.

In announcing the series of talks, Dr. Behneman said: "In collaboration with KFRC we are going to present to you a series of lectures on general medical subjects, which upon experience, would seem of most interest. These lectures will be given with the consent and approval of the San Francisco County Medical Society, and by members of that society. Some of the speakers will be from the staffs of the two university medical schools, California and Stanford. We are attempting to present in an ethical manner, medical facts. No correspondence will be undertaken; letters obviously cannot be answered. Diagnosis of individual cases will not be attempted, nor will the treatment of disease be discussed except when necessary in the presentation of the subject at hand. The lectures will be an outlay of facts and not a criticism of men, methods or beliefs."

This week Dr. Edwin L. Bruck, assistant professor of medicine, spoke on influenza and pneumonia. The speakers and topics for coming programs will be announced a few days previous to the date of presentation.

**Colver Lectureship.**—The official series of lectures of the Colver Lectureship under the auspices of the College of Medical Evangelists in Los Angeles was delivered by Dr. Walter R. Miles, professor of experimental psychology at Stanford University on the evenings of November 13, 14, and 15, at Patriotic Hall, the regular meeting place of the Los Angeles County Medical Association.

The general title of the series was "Psychobiological Investigation of Drugs." The lectures were well attended by the faculty and students of the school as well as by the medical profession. A large part of the subject-matter was based upon experimental work, completed in the last few months and not previously published. The third of the lectures, on the subject of "Dilute Alcoholic Beverages and Human Behavior," was of particular interest. It is expected that the lectures will be published in an appropriate form.

**The Celebration of the Tercentenary of the Birth of Marcello Malpighi.**—Under the joint auspices of the Italy-America Society of San Francisco, the universities of California, Stanford, and Santa Clara, there was held at the Fairmont Hotel on November 14 the celebration of the tercentenary of the birth of Marcello Malpighi.

Many members of the San Francisco medical associations and representatives of the medical professions of the Bay district, as well as of the above mentioned institutions, were present.

Dr. Langley Porter presided. In a brief speech Doctor Porter reminded the guests of the great contributions of Italy, not only to the arts, but also to the sciences, and commented upon the significance of the celebration.

He introduced Professor Carlo Formichi of the University of Rome, at present at the University of California, as the first occupant of the Chair of Italian Culture.

Professor Formichi spoke on the Italy of Malpighi's time and dealt principally with the many difficulties which hampered greatly Italian political and social life, but did not prevent the great discoveries of Malpighi and other famous Italian scientists.

Dr. Arthur W. Meyer of the University of Stanford spoke about Malpighi as a biologist and as creator of the microscopic anatomy. He said that the great Italian scientist of the seventeenth century is a modern because he applied in his discoveries the experimental method and pushed ahead the biological science by exploring all fields notwithstanding the lack of proper scientific equipment. His discoveries and his experiments, he added, for more than two hundred years represented all we knew about certain functions of the human body and many diseases. He emphasized the debt of gratitude that the world owes to him and invited his hearers not to forget this genial and noble man.

Professor Chauncey Leake of the University of California spoke of Malpighi as a botanist and pathologist. He illustrated the relations between Malpighi and the Royal Society of London, and took this opportunity to remind that intellectual and scientific coöperation among foreign countries is the greatest need to insure the progress of civilization. Professor Leake reviewed briefly all the discoveries of Malpighi in the field of botany, his conceptions and intuitions on the cause of diseases. He was enthusiastic in his admiration for the great scientist and expressed his opinion that his works can still be studied in our day to great advantage.

Father E. C. Menager, S. J., of the University of Santa Clara, spoke on Malpighi's philosophy of life, and presented the hero as a scholar, a physician, a citizen, and a Catholic.

The speeches were all followed with great interest and the celebration left on all those who attended it a very pleasant impression.

The Lane Hospital library loaned to the Italy-America Society several copies of Malpighi's picture and some of its rare volumes on Malpighi's works, which were passed around to illustrate the subjects of the talks.

**Continental Anglo-American Medical Society.**—With rare exceptions hotels in Europe refuse to give the address of American or English doctors endeavoring always to have the hotel doctor employed who they claim speaks English perfectly. When this doctor arrives, if he speaks English at all, it is usually so poorly that the patient does not fully understand him and he feels that the doctor has not fully under-

stood what has been said to him, and is consequently irritated and alarmed and his trouble aggravated.

To overcome this boycott the Continental Anglo-American Medical Society was organized in 1885, and in 1889 commenced the publication of a list of the Anglo-American doctors practicing in Continental Europe and northern Africa; and wishing to establish the closest relations possible with their colleagues in America and England, will send a copy of this list, free of charge to anyone applying to the secretary, Dr. Sherwood-Dunn, 54 Bd. Victor Hugo, Nice France.

**The Fourth Annual Clinic** was held in Los Angeles, December 3 to 8 inclusive, under the auspices of all sections and branches of the Los Angeles County Medical Association. A cordial invitation to attend these clinics was extended to members of the Los Angeles County Medical Association and to all county society members throughout the West and Southwest.

The hospitals in Los Angeles arranged clinics of special interest in medicine, surgery, and the allied specialties for each day during this week.

The Clinical and Statistical Section of the Los Angeles County Medical Association published a daily program of these clinics and operations. Copies were available to visitors at any of the hospitals listed in the program, or at the office of the section.

There was a combined meeting of all sections and branches of the Los Angeles County Medical Association on Thursday evening, December 6. The subject treated was of vital interest to every practitioner of medicine. Two men of national reputation spoke at this meeting.

**Local Committee American Association of Hospital Social Workers.**—A group of hospital social workers of northern California have formed themselves into a local committee of the American Association of Hospital Social Workers. The group has been officially recognized by the national organization and held their first meeting the evening of October 5.

**Society Condemns "Expert" Testimony.**—The House of Delegates of the Missouri State Medical Association, in annual session, May 16, adopted a resolution condemning the practice of expert testimony both by the state and by the defense in criminal cases in which insanity is a plea. The reference committee which recommended this resolution also recommended that the by-laws of the association be amended and that any member violating this portion of the by-laws be amenable to the board of censors of his society for unethical conduct. The report of the committee was adopted.—*J. M. A. Georgia.*

**Medical Profession of Western Hemisphere to Convene in Havana.**—The next congress of the Pan-American Medical Association will be held in Havana, Cuba, from December 29, 1928 to January 3, 1929. The program, which is being arranged by the president, Dr. Fred H. Albee of New York City, will be a strong one, and will include four orations, upon the subjects of surgery, medicine, pediatrics, and tropical medicine.

Dr. William J. Mayo will give the oration on surgery, and Dr. Lewellys Barker of Johns Hopkins University the oration on medicine. Papers will be read in both Spanish and English.

This congress will be representative of the medical profession of the entire Western Hemisphere. Chapters of the association have been and are being organized in various centers of North America and Central



America, as well as in the Antilles, all of which will be represented at the congress.

One of the recent accomplishments of the Pan-American Medical Association is the establishment of the Pan-American Hospital in New York City for the benefit of the Latin-speaking people.

**International Medical Postgraduate Courses in Berlin** are arranged with the help of the medical faculty of the university by the Lecturers' Association for medical continuation courses and the Kaiserin Friedrich-Haus. Part of the courses take place permanently, part only in March and April, 1929.

The courses are held in German, but numerous professors are able to lecture in the English, French, and Spanish languages.

The information bureau of the Kaiserin Friedrich-Haus für das ärztliche Fortbildungswesen, Berlin NW 6, Luisenplatz 2-4 is instrumental in procuring suitable lodgings, gives information as to cost of stay, arranges the attendance in clinics at operations, etc., and, upon desire, sends detailed syllabuses.

## MEDICAL ECONOMICS

**A New Course for the Medical Faculty.**—When the average medical student has received his diploma and degree he feels that success is at hand and no more worries and difficulties are forthcoming.

He feels that he knows about all there is to be known in his profession. He is of the opinion that when he gets into practice his word will be authority and people will flock to him for advice.

But as soon as he picks up his hat and diploma and goes out to look for a location, his difficulties begin. Prior to this the problems of becoming located and established looked easy enough. Now he finds that, although he has learned the science of medicine thoroughly and well, he is hopelessly at sea when it comes to the art of medicine.

He has had no experience regarding actual contact with patients. He may know the manners and etiquette of society well enough, yet when it comes to meeting and dealing with his patients there is a vast difference.

Sick folks are in need of a special type of psychology and behavior on the doctor's part. He must be courteous, cheerful, sympathetic, honest, gentle. To approach a patient in a gruff, cold, scientific attitude creates a wrong impression. The patient becomes fearful, distrustful, and regrets having come. He often feels that the physician is more interested in his pocketbook than in his disease.

To be sure every physician should be interested in the financial end of his practice, but not to the extent of injuring his standing or his patient's feelings, unless, of course, he has a dead-beat patient. His patients want to be considered first and foremost when they come to see him, and it is his business to show them every attention.

When he is going to college the young man sees patients galore, but not private patients, and there is a great difference. His practical work brings him into contact with patients in charity wards and out-patient departments where they are herded together, examined, diagnosed and treated with little or no idea of courtesy, practically no sympathy or gentleness, and with the thought of getting them out of the way as fast as possible.

He has no thought or care of ever seeing them again. Often he becomes so imbued with these ideas and attitudes that he carries them on into his own

practice. It is only after some very bitter experiences that he realizes his failing and attempts to mend his ways.

Who is responsible for this state of affairs? The medical college largely because there is little or no place in all its curriculum where the real art of medicine is imparted.

How can this be remedied? One way is to establish a so-called medical arts course in which every student is instructed as far as possible in the theoretic and practical side of the art of medicine. This instruction should be under the leadership of men of wide practical experience and who are known as artists in dealing with patients.

A still better method perhaps would be for every graduate in medicine, after finishing his internship, to associate himself for at least a year with an ethical physician of wide practical experience and a large clientele.

He would learn the niceties, courtesies and policies that could never be learned as quickly in any other way. By so doing, his success as a practicing physician would be much surer and easier.

Another phase of the profession that is sadly neglected is the business side. I doubt if there is a class of professional men who are so deficient in the business end of their work as are doctors. No class of men are so gullible and make such bad investments. No class of men spend their income so unwisely.

Why? Because they have had little or no training during all their courses in the principles of business. The business terms and phraseology which should be understood and used by everyone are often misunderstood and misapplied by medical men, young ones especially. There is probably no class of men who keep their accounts so haphazardly. Doctors are poor collectors and often they carry thousands of dollars on their books indefinitely. People have learned this and as a consequence the doctor is the last to be paid, and often is never remunerated.

A valuable course that every medical college would do well to institute is a business course for physicians in which every student would learn the basic principles of business as applied to a doctor's office. The course should include in a brief way principles relative to medico-legal procedures—narcotic laws, fee splitting, statistical records, coroner's inquests, medical society proceedings and the like. It should also include in a summary manner the code of medical ethics.

It would seem that at present the average medical curriculum is as full as it possibly can be, but I believe that there is no college that could not give at least one hour and perhaps two hours a week during each semester for such a course. I have no doubt that it would be very popular as well as practical, and every student would be eager to use such a course.

A so-called elective course that would find a good deal of favor among students of medical colleges might be designated as a medical literary course, in other words, a course that would prepare students for writing and lecturing on subjects concerning medicine and allied sciences.

Every medical man sooner or later finds himself confronted with the desire or necessity of writing case records, reporting scientific investigations and discoveries, giving papers and lectures, and so on. Few are really prepared. It is a reflection on the English language to note the way some material in our scientific magazines is written by college-bred individuals.—L. L. McCoy, M.D., Reprinted from *Medical Economics*.



## TWENTY-FIVE YEARS AGO \*

### EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Volume I, No. 12, December, 1903

From some editorial notes:

. . . Rats.—In the November issue the journal published an article by Doctor Currie on "Rats" and their relation to the spread of contagious disease. . . . The public health authorities in charge of the work of cleaning up Chinatown are doing all that they can to get rid of the rats, but with comparatively little result. The rats seem to be, if anything, increasing in numbers, and every month specimens are found from which the bacillus pestis is isolated. During the month of October there were five deaths from plague; in November there were several more. . . .

. . . Dr. Gould Criticized.—The *Boston Medical and Surgical Journal* published an excellent article by Dr. George M. Gould on the "Ill Health of Francis Parkman," in which Doctor Gould demonstrated, to the satisfaction of any ordinary individual, the fact that Parkman's ill health was almost undoubtedly due to uncorrected eyestrain. The *Boston Journal* thought Doctor Gould somewhat of a "crank" on this subject of eyestrain, and editorially told him so in the most polite of Bostonese. . . . "We must, therefore, reiterate our opinion that Doctor Gould is an extremist in his advocacy of a *theory which unquestionably stands on a basis of scientific fact.*" (Italics ours.) Doctor Gould ought certainly to be satisfied with that; in the course of time probably Boston will advocate a theory that has a "basis of scientific fact." Perhaps the thing that rankles is the possibility that the population of Boston may not have been quite accurately refracted, and that a change of glasses may be necessary!

. . . A Title of Honor.—The title "doctor" was originally used to signify teacher in general, but in about the twelfth century it became a title of honor for the learned, irrespective of teaching. . . . Unfortunately in this day of easily acquired titles there is danger of the ancient and cherished title of doctor losing much of its distinction. . . .

. . . School Children's Eyes.—The journal publishes this month an exceedingly interesting document. It is a circular or leaflet of instruction to school teachers concerning the importance of, and the method to be used in, examining the eyesight of school children. This leaflet has been prepared by the Superintendent of Schools of Los Angeles. . . . Ventilation, sufficient space, illumination, etc., and all questions of general sanitation are now matters of routine consideration by the architect and the school board. But the eyes of the pupil—upon which depend, one may say, the whole future life of the individual—must be considered by the specialist, or first by the teacher under instructions from the specialist.

. . . The New Constitution and By-Laws.—In this issue will be found the first installment of the proposed new constitution and by-laws, recommended by the special committee of five on that subject, appointed under a resolution passed by the House of Delegates at the last meeting of the state society. . . . As the whole scheme of reorganization along the broad lines advocated by the American Medical Association is involved, you are most earnestly requested to give this matter your very careful reading and digestion. The committee believes that, in many ways, the old constitution and by-laws is a superior document to that recommended by the American Medical

Association, but it contains certain basic differences which are entirely at issue with the general scheme of organization, and hence must be radically altered.

From an article on "Decapsulation of the Kidney for Chronic Bright's Disease" by George Goodfellow, M. D., and G. L. Eaton, M. D.:

. . . The rapid introduction of alleged new remedial measures, medical and surgical, during the past few decades, with resulting claims for their efficiency is remarkable and startling—so startling, in fact, that one naturally is led to inquire into their utility. . . . My purpose in this foreword is not to descant upon philosophy, but to call attention to the fact that there is unity in this universe of ours, and that we cannot make separate entities of diseases for purposes of treatment. Each must be looked upon as part of a general whole, the variations of which may for investigation be temporarily labeled. The rapid reversion to therapeutical methods that have been derided for many, many years as irrational, unscientific and brutal, particularly in glandular therapy, is noteworthy. Likewise, many surgical procedures can claim parentage from the time that the shawm and sackbut were used near the Willows of Babylon, and the morning song of Memnon arose to the sun. . . . The foregoing is apropos of an operation for the relief of a complex disease that has been written about much of late, and more recently discussed with a mild degree of acrimony, at a meeting of the County Medical Society of San Francisco, the so-called Edebohls operation for "decapsulation of the kidney for chronic Bright's disease." . . .

From an article on "Puerperal Septicemia" by R. A. Whiffin, M. D., San Jose:

. . . This is a disease that has probably existed almost as long as the human race, yet one that has not been understood until comparatively recent times. Dr. Oliver Wendell Holmes in 1843 made a strong plea for care in attending cases of confinement after attending autopsies or cases of erysipelas, but it fell to the lot of Semmelweis of Vienna, in 1847, to discover that which Doctor Holmes suspected as a fact, and to him we owe our first real knowledge of the causes of puerperal septicemia. It was not exactly an accidental discovery, but was made by comparing the symptoms of the fatal illness of Professor Koletchka of Vienna, which illness was caused by a wound he received while dissecting, with those of puerperal septicemia, which they resembled. This resemblance made Semmelweis think there might be a connection between the two diseases, and to prove it he made all his students who were working in the dissecting room wash their hands in chlorin water before examining a pregnant woman, and by so doing reduced the mortality from septicemia among women confined by his students from 11.4 per cent to 1.27 per cent, which was certainly proof that unclean hands carried the disease. Without knowing it Semmelweis anticipated Lister and Pasteur in practical antisepsis. . . .

From an article on "The Prevention of Perineal Lacerations" by Edward N. Ewer, Oakland:

. . . This paper is not written for the purpose of exploiting any special method for the prevention of perineal lacerations, but rather to call attention to the bearing upon the subject of certain more or less neglected obstetric procedures. . . .

From an article on "Infectious Pulmonary Edema—Preliminary Report" by W. Ophüls, M. D., San Francisco:

. . . While I was studying mixed infections in pulmonary tuberculosis, I met with a condition which, to the naked eye, had all the appearances of an acute pulmonary edema such as we are accustomed to see in cases of disturbance of the circulation in the lungs. . . .

\* This column aims to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.



## CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, M. D.  
Secretary of the Board

### News Items, December, 1928

Incumbent officers of the State Board of Medical Examiners were reelected today at the quarterly meeting of the board here. They were: Percy T. Phillips of Santa Cruz, president; William R. Molony of Los Angeles, chairman; and Charles B. Pinkham of San Francisco, secretary. (Associated Press dispatch, Sacramento, October 17, Grass Valley *Union*, October 18, 1928.)

Members of the State Medical Board last night heard testimony of Reuben Adcox, St. Louis, who appeared as a witness for the board in its case against Eugene Rinaldo, alleged holder of medical credentials from a "diploma mill" whom the board states is practicing in Los Angeles. . . . L. E. Dadmun, attorney for Rinaldo, secured a restraining order from the Los Angeles Superior Court preventing the board from rendering a decision on the case, but stipulating that testimony of eastern witnesses might be heard.—*Sacramento Union*, October 18, 1928.

At the October meeting of the Board of Medical Examiners the license of John E. Baker, M. D., to practice as a physician and surgeon in California was restored and he was placed on probation for a period of five years.

According to reports, Jose Fernando Vasurto on October 30 pleaded guilty in Los Angeles to a violation of the Medical Practice Act and was sentenced to pay a fine of \$100 or serve twenty-five days in the city jail, sentence being suspended for two years on condition that he desist from violation of the Medical Practice Act.

Charged with the murder of Jack Stachel, a janitor, Dr. Frank L. Burleigh, Burbank physician, was arraigned yesterday morning before Justice of the Peace Watson, who set his preliminary hearing for Friday at 2 p. m.—*Los Angeles Times*, October 23, 1928.

Charged with practicing medicine without a license, Dr. W. A. Chaikin, chiropractor, of 1117 West Sixth Street, was arrested yesterday by officers of the State Board of Medical Examiners. A quantity of herbs and medicine was seized by the officers.—*Los Angeles Illustrated Daily News*, September 25, 1928.

Found guilty of violating the state Medical Practice Act by practicing medicine without a license, J. C. J. Chartier, proprietor of a drug store at Seventy-Fourth Avenue and Foothill Boulevard, yesterday was sentenced to pay a fine of \$300 and serve sixty days in jail. . . . His counsel filed notice of appeal to superior court, and Chartier was released on \$500 bond. He was arrested July 25 by Inspector J. W. Davidson of the State Medical Board, who charged that Chartier had treated Hazel Portlock, four, 2522 Seventy-Eighth Avenue, for a sore throat. A physician was called by the child's parents. He ordered her removed to Highland Hospital where she died of diphtheria July 21 (San Francisco *Chronicle*, September 18, 1928). See "News Items," May and September, 1928.

At the October meeting the Board of Medical Examiners dismissed the complaint filed against George Coulthard, M. D., of Los Angeles, based upon record of conviction January 5 in the Los Angeles superior court at Long Beach of alleged sale of narcotics. Previous entries, "News Items," November 27, February and April 28.

According to reports the case against Thekla Dalman, charged with violation of the Medical Practice Act, was dismissed by the justice of the peace, Barstow Township, on October 31, our investigator relating: "This is one of the most flagrant miscarriages of justice that has ever been called to our attention, as the sworn testimony of witnesses was to the effect that the defendant visited and treated patient several days prior to childbirth; that on October 4 she examined patient and gave her three white pills, saying they were for labor pains; brought and used instruments; directed the other white woman to give the ether; got on top of the patient and pressed down till witness heard 'something pop'; took family scissors from the table and cut the umbilical cord, and used family towel to bandage patient, neither towel nor scissors being sterilized. Patient became infected and later died at the County Hospital. There was no defense whatsoever, and the case was dismissed with any amount of additional evidence available had it been deemed necessary." The report further relates that the authorities refused "to file either a manslaughter complaint or a misdemeanor complaint."

Renewed drive against alleged "diploma mills" was set in motion today as the State Board of Medical Examiners rejected the application for a license of Hamilton McClarty of San Francisco, and declared that the (National) University of Belgium of which McClarty is purported to be a graduate is nonexistent. Check with the United States Counsel at Antwerp, according to Dr. C. B. Pinkham, secretary of the board, reveals that there is no such school and that McClarty's name has not appeared on the list of students of any of the four Belgian universities offering medical courses. McClarty, who asked for a certificate to practice medicine and surgery in California at the last meeting, also offered in support of his request papers from the Kansas City College of Medicine and Surgery (San Francisco *Call*, September 28, 1928). The Kansas City College of Medicine and Surgery earned an unenviable reputation as a diploma mill in 1924, since which time the charter of this school is reported to have been revoked by the authorities of the state of Missouri.

No feeling that anyone may have regarding the various kinds of "healing" should interfere with the vigorous prosecution of those engaged in the operations of diploma mills. While some of us may differ conscientiously regarding the various kinds of "pathies," the drugless healers, faith healers, mechanotherapy and all sorts of therapies, and while we are by no means unanimous as to the ethical value of "freedom" that offers healing of one advance theory or another, none of these matters is involved in prosecutions that the State Board of Medical Examiners is undertaking to prevent the use of fraudulent diplomas. This cheating is the most indecent sort of cheating. It is used to obtain money in the most miserable sort of way. It offers to people who can ill afford it the opportunity to get competitive treatment when no treatment is of any value unless it is genuine. . . . Let the state board in this matter have the active sympathy of public opinion to obtain the truth and to act upon it.—*Fresno Republican*, October 19, 1928.

According to reports J. Jaquez Fabian, announcing himself as the "American Medical Specialist" with offices in the Financial Center Building, Los Angeles, who distributed the booklet called "Secrets for Men Only" (which harkens back to the days of the old men's quack specialist offices that thrived in California prior to 1914), on November 3, 1928, pleaded guilty to a violation of the Medical Practice Act, and was sentenced to pay a fine of \$200 or serve fifty days in the city jail, the fine being paid.

P. Frazer, charged with violation of the Medical Practice law and found guilty in police court, was yesterday sentenced by Judge Cecil S. Johnson.



Judge Johnson imposed a sentence of sixty days in the county jail and suspended execution of the sentence on condition that Frazer observe all laws, particularly the laws relative to medical practice. . . . Frazer, with another man, operated the Humanitorium on North Eldorado Street. He gave treatments by the Abrams electrical method. He admitted that he had no medical training, but that he was an electrician by trade. . . . The mode of procedure was, after a prospective patient called, to extract a drop of blood from the ear of the visitor and send it to Dr. Maud Grey Potts of Modesto for analysis. Operatives employed by the inspector of the State Medical Board called at the place and had drops of blood taken from them. In one instance, the operative told, it was testified that after Doctor Potts had analyzed his drop of blood he was found to be suffering from a variety of ailments including an ulcerated tooth, the very tooth was identified, the witness declared.—*Stockton Record*, September 20, 1928.

After a formal hearing of charges of habitual intemperance, the license of James Ham, San Bernardino physician, was revoked on October 18, 1928, by the Board of Medical Examiners at its October meeting.

C. K. Haviland, found guilty of violating the state medical act, was at liberty today as a result of probation granted him yesterday by Judge C. N. Andrews. The court suspended sentence after imposing a county jail term of ninety days.—*San Diego Sun* October 12, 1928.

On September 11, B. J. Holland pleaded guilty in Los Angeles to a violation of the Medical Practice Act and was sentenced to pay a fine of \$250, sentence being suspended for two years.

If Dr. Franklin Kerr, formerly of Garden Grove, is paroled from the Federal prison at Leavenworth where he is serving five years for sending poisoned candy through the mails to his wife, Dr. Luella Kerr of Fillmore, it will be under condition that he remain forever out of California. Such was the announcement of United States District Attorney S. W. McNabb, who approved Doctor Kerr's application for executive clemency at the hands of President Coolidge. Doctor Kerr has served about half of his term. The candy episode occurred while his wife, also a physician, was pressing divorce proceedings.—*Orange News*, September 12, 1928.

According to report of our investigation department, S. F. La Piana, a druggist of Los Angeles, who admitted treating various persons who came to his store, putting up remedies for them, etc., on September 25 pleaded guilty to violation of the Medical Practice Act and was sentenced to sixty days in the city jail, suspended for two years.

Charged with violation of the State Poison Act, Dr. Ernest A. Lupton, 1548 East Anaheim Street, was held to answer after appearing in Municipal Judge Moody's court. The man was arrested by D. C. Whipple and C. H. Wheeler, inspectors for the California State Board of Pharmacy, after he was said to have sold narcotics to a woman operator.—*Long Beach Sun*, September 20, 1928.

Manuel Machado, Santa Maria chiropractor, pleaded guilty yesterday to a charge of practicing medicine without a license and was fined \$250 by the court. Machado was arrested some weeks ago on complaint filed by the district attorney's office. At the preliminary hearing conducted in Santa Maria the evidence was introduced that Machado had administered pills and tablets and given prescriptions for drugs. One

witness testified she had received "radio treatments" from Mr. Machado.—*Santa Barbara News*, October 30, 1928.

The license of Jackson Martin, M. D., Fresno physician, was revoked by the Board of Medical Examiners on October 18, 1928, following a formal hearing on a charge of performing an illegal operation.

Louis C. Mullikin, licensed chiropractor, Los Angeles, on October 29, 1928, pleaded guilty to a violation of the Medical Practice Act and was sentenced to pay a fine of \$200 or serve fifty days in the city jail. One hundred dollars was suspended, but he must pay \$100 or serve twenty-five days.

According to reports D. Playfair pleaded guilty in Los Angeles on September 19 of violation of the Medical Practice Act and was sentenced to serve thirty days in the county jail, sentence suspended for two years.

Because he used the title "Dr." in front of his name without authority J. O. Puryear, Berkeley negro, yesterday was sentenced to pay a fine of \$100 or spend fifty days in the county jail. . . . He entered a plea of guilty to the charge before Superior Judge Fred B. Wood and was remanded to the custody of the sheriff under sentence of fine or imprisonment.—*Berkeley Gazette*, September 5, 1928.

It took a jury in Municipal Judge Thomas Reeves' court just four minutes yesterday to decide "Dr." Fred Reed's "Youth Machine" was without healing powers and to find the "inventor" guilty of violating the Medical Practice act (Los Angeles *Daily News*, October 4, 1928). Previous entry, "News Items," September, 1928.

Found guilty of second degree murder when he was accused of performing an illegal operation on Mrs. Charlotte Ricks which it was claimed was the direct cause of her death, Louis von Frohner was today given a term of life imprisonment in San Quentin prison by Superior Judge Elliott Craig. Frohner's motion for a new trial was denied.—*Los Angeles Record*, October 19, 1928.

Dr. Clayton W. Wheeler, gland specialist, with offices here and in Los Angeles, today won a review in the superior court of the revocation of his license by the State Medical Board Wednesday. The said body revoked his license when it ruled he was violating the state law by advertising his goat-gland operation. In his petition for review Doctor Wheeler charged that the examining board had exceeded its authority, had accepted hearsay evidence, and had refused him the right to refute testimony against him. Presiding Judge Johnston granted the petition and set the date for the review at the 30th instant before Superior Judge Deasy. (Press dispatch dated San Francisco, October 18, printed Los Angeles *Times*, October 19, 1928.)

With Mrs. Eva Tornell, twenty-one, of 2082 Harrison Street, reported dying at Peralta Hospital from an illegal operation, East Bay police today held a woman practitioner in connection with investigations into the case. The woman held is Mrs. Florence Evelyn Williams, who maintains "offices" embracing the entire upper story of the building at 541 Sycamore Street. In a subsequent raid on this place the police confiscated an operating table and other evidence.—*San Francisco Bulletin*, September 5, 1928.

After a formal hearing held before the Board of Medical Examiners, the license of Hugh T. Williams, M. D., Los Angeles physician, was revoked October 17, 1928, based upon narcotic violation.



# Index—California and Western Medicine, Volume XXIX

## July to December, 1928

California and Western Medicine is annually issued in two volumes; the first from January to June inclusive, and the second from July to December, inclusive.

This index is arranged under the following heads:

- I. Key to Abbreviations.
- II. Authors.
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- IV. Lure of Medical History.
- V. Book Reviews.
- VI. Editorials.
- VII. Bedside Medicine.
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- IX. Medical Society Reports.
- X. Deaths.
- XI. Miscellany.

Note: Members who wish to consult a general medical index are referred to the Quarterly Cumulative Index of the American Medical Association.

### I. KEY TO ABBREVIATIONS

Add.—Address.

Or.—Original Article.

C. R.—Case Report.

B. M.—Bedside Medicine.

Ed.—Editorial.

M. T.—Medicine Today.

C. N.—Clinical Notes.

### II. AUTHORS

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